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Postoperative Wound Infections:

The Influence of Ultraviolet Irradiation of the Operating Room and of Various Other Factors

*Report of an Ad Hoc Committee * of the Committee on Trauma, Division of Medical
Sciences, National Academy of Sciences-National Research Council*

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Supplement to

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APPENDIX A

FORMS USED IN COLLECTING DATA

Record room number

Cooperative Ultraviolet Light Study

BACTERIOLOGICAL
DATA-OPERATIVE CULTURE

Registry number

2 —

1. Patient's name (Last, first, middle)		2. Indications for culturing <input type="checkbox"/> 1. Wound considered contaminated or dirty <input type="checkbox"/> 2. Clinical evidence of infection	
3. Source of culture specimen (Specify) <input type="checkbox"/> 1. Wound <input type="checkbox"/> 2. Skin <input type="checkbox"/> 3. Resp. <input type="checkbox"/> 4. GU <input type="checkbox"/> 5. GI <input type="checkbox"/> 6. Blood <input type="checkbox"/> 7. Other			
4. Organisms cultured (Check 1 or more boxes) <input type="checkbox"/> None <input type="checkbox"/> 3. Alpha strep. <input type="checkbox"/> 6. Anaer. strep. <input type="checkbox"/> 1. Paracolon <input type="checkbox"/> 4. Clostridium sp. <input type="checkbox"/> 1. Staph. coag. pos. <input type="checkbox"/> 4. Beta strep. <input type="checkbox"/> 7. Esch. sp. <input type="checkbox"/> 2. Proteus sp. <input type="checkbox"/> 5. Bacteroides sp. <input type="checkbox"/> 2. Staph. coag. neg. <input type="checkbox"/> 5. Nonhemo. strep. <input type="checkbox"/> 8. Aero. - Kleb. <input type="checkbox"/> 3. Pseudomonas sp. <input type="checkbox"/> Unk. organism <input type="checkbox"/> 9. Other known organism (Specify)			
5. Characteristics, cultured staphylococcus <input type="checkbox"/> None cultured			
Coagulase test		Antibiogram, S=Sensitive, R=Resistant	
Pos.	Neg.	Peni- cillin	Strepto- mycin
		Tetra- cycline	Chloram- phenicol
		Erythro- mycin	Novo- biocin
		Phage typing, NT=Not typable Unk=Unknown	
		NT	Unk
		Phage type (Specify)	
(1)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(2)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(3)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(4)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(5)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____

Note: A separate report should be prepared for each culture specimen collected.

NAS-NRC
FUA-R34-9 Nov. 1959

Record room number

Cooperative Ultraviolet Light Study

BACTERIOLOGICAL
DATA-WOUND DRAINAGE

Registry number

1 —

1. Patient's name (Last, first, middle initial)		2. This specimen collected Date _____ PO day _____	
3. Source of drainage <input type="checkbox"/> 1. Incision proper <input type="checkbox"/> 2. Wound drain site <input type="checkbox"/> 3. Remote drain site		4. Appearance of drainage <input type="checkbox"/> 1. Serous or sanguinous <input type="checkbox"/> 2. Purulent	
5. Organisms cultured (Check 1 or more boxes) <input type="checkbox"/> 1. Staph. coag. pos. <input type="checkbox"/> 4. Beta strep. <input type="checkbox"/> 7. Esch. sp. <input type="checkbox"/> 2. Proteus sp. <input type="checkbox"/> 6. Bacteroides sp. <input type="checkbox"/> 2. Staph. coag. neg. <input type="checkbox"/> 5. Nonhemo. strep. <input type="checkbox"/> 8. Aero. - Kleb. <input type="checkbox"/> 3. Pseudomonas sp. <input type="checkbox"/> Unk. organism <input type="checkbox"/> 3. Alpha strep. <input type="checkbox"/> 6. Anaer. strep. <input type="checkbox"/> 1. Paracolon <input type="checkbox"/> 4. Clostridium sp. <input type="checkbox"/> 9. Other known organism (Specify)			
6. Characteristics, cultured staphylococcus <input type="checkbox"/> None cultured			
Coagulase test		Antibiogram, S=Sensitive, R=Resistant	
Pos.	Neg.	Peni- cillin	Strepto- mycin
		Tetra- cycline	Chloram- phenicol
		Erythro- mycin	Novo- biocin
		Phage typing, NT=Not typable Unk=Unknown	
		NT	Unk
		Phage type (Specify)	
(1)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(2)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(3)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(4)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____
(5)	<input type="checkbox"/> <input type="checkbox"/>	_____	_____

Note: A separate report should be prepared for each "wound drainage" culture specimen collected.

NAS-NRC
FUA-R34-10 Feb. 1960

Record room number

Cooperative Ultraviolet Light Study

BACTERIOLOGICAL

DATA-INFECTIONS OTHER THAN WOUND

Registry number

3 —

1. Patient's name (Last, first, middle initial)

2. This specimen collected

Date

PO day

3. Site of infection

☐ 2. Skin

☐ 3. Resp.

☐ 4. GU

☐ 5. GI

☐ 6. Septicemia

☐ 7. Other (Specify)

4. Organisms cultured (Check 1 or more boxes)

☐ 1. Staph. coag. pos.

☐ 4. Beta strep.

☐ 7. Esch. sp.

☐ 2. Proteus sp.

☐ 5. Bacteroides sp.

☐ 2. Staph. coag. neg.

☐ 3. Nonhemo. strep.

☐ 8. Aero. - Kleb.

☐ 3. Pseudomonas sp.

☐ Unk. organism

☐ 3. Alpha strep.

☐ 6. Anaer. strep.

☐ 1. Paracolon

☐ 4. Clostridium sp.

☐ 9. Other known organism (Specify)

5. Characteristics, cultured staphylococcus

☐ None cultured

Coagulase test

Antibiogram, S=Sensitive, R=Resistant

Phage typing, NT=Not typable Unk=Unknown

Pos.	Neg.	Peni- cillin	Strepto- mycin	Tetra- cycline	Chloram- phenicol	Erythro- mycin	Novo- biocin	NT	Unk	Phage type (Specify)
(1)	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	
(2)	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	
(3)	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	
(4)	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	
(5)	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	

Note: A separate report should be prepared for each "other infection" culture specimen collected.

NAS-NRC
FUA-R34-11 Feb. 1960

Cooperative Ultraviolet Light Study

BACTERIOLOGICAL DATA—
PERSONNEL CULTURE

Identification No.

2 —

1. Name (Last, first, middle initial)

2. Date specimen collected (Month, day, year)

3. Source of culture

☐ 1. Anterior nares

☐ 2. Skin

☐ 3. Other (Specify)

4. Organisms cultured (Check 1 or more boxes)

☐ None of following

☐ 1. Staph. coag. pos.

☐ 2. Staph. coag. neg.

☐ 4. Beta strep.

5. Characteristics, cultured coagulase positive staphylococcus

☐ None cultured

Antibiogram, S=Sensitive, R=Resistant

Phage typing

	Peni- cillin	Strepto- mycin	Tetra- cycline	Chloram- phenicol	Erythro- mycin	Novo- biocin	Not typable	Unk.	Specify type
(1)							<input type="checkbox"/>	<input type="checkbox"/>	
(2)							<input type="checkbox"/>	<input type="checkbox"/>	
(3)							<input type="checkbox"/>	<input type="checkbox"/>	

Remarks:

Note: Separate report should be prepared for each culture specimen collected.

NAS-NRC
FUA-R34-12 Feb. 1960

Operating Room No.

Cooperative Ultraviolet Light Study

BACTERIOLOGICAL DATA—
OPERATING ROOM CULTURE

1. Plate <input type="checkbox"/> 1. Shielded <input type="checkbox"/> 2. Unshielded		2. Date exposed (Month, day, year)		3. Time (Specify a.m., p.m.) _____m. to _____m.	
4. Organisms cultured (Check 1 or more boxes)					
<input type="checkbox"/> None		<input type="checkbox"/> 3. Alpha strep.		<input type="checkbox"/> 6. Anaer. strep.	
<input type="checkbox"/> 1. Staph. coag. pos.		<input type="checkbox"/> 4. Beta strep.		<input type="checkbox"/> 7. Esch. sp.	
<input type="checkbox"/> 2. Staph. coag. neg.		<input type="checkbox"/> 5. Nonhemo. strep.		<input type="checkbox"/> 8. Aero. - Kleb.	
				<input type="checkbox"/> 9. Other known organism (Specify)	
				<input type="checkbox"/> 1. Paracolon	
				<input type="checkbox"/> 2. Proteus sp.	
				<input type="checkbox"/> 4. Clostridium sp.	
				<input type="checkbox"/> 5. Bacteroides sp.	
				<input type="checkbox"/> 8. Pseudomonas sp.	
				<input type="checkbox"/> Unk. organism	
5. Characteristics, cultured coagulase positive staphylococcus <input type="checkbox"/> None cultured					
Antibiogram, S=Sensitive, R=Resistant					
	Peni- cillin	Strepto- mycin	Tetra- cycline	Chloram- phenicol	Erythro- mycin
					Novo- biocin
(1)	_____	_____	_____	_____	_____
(2)	_____	_____	_____	_____	_____
(3)	_____	_____	_____	_____	_____
Phage typing					
	Not typable	Unk.	Specify type		
	<input type="checkbox"/>	<input type="checkbox"/>	_____		
	<input type="checkbox"/>	<input type="checkbox"/>	_____		
	<input type="checkbox"/>	<input type="checkbox"/>	_____		
6. Colony count					
Remarks:					

Note: A separate report should be prepared for each plate culture made.

Cooperative Ultraviolet Light Study Study Registry

List ALL operations performed in study operating rooms.

[illegible][illegible][illegible]

* If the patient is to be excluded from study, record code letter corresponding to reason for exclusion:

- a. Open procedure not performed (vaginal burn; donor site, split thickness skin graft).
- b. Procedures confined entirely to the oral cavity and nasopharynx.
- c. Proctological procedures, such as hemorrhoidectomy, excision of fistula in ano, and drainage perirectal abscess.
- d. Circumcision.
- e. Excision of toenail or fingernail.
- f. Incision and drainage of abscess confined to the integument.
- g. Death in operating room.

Record room number

Cooperative Ultraviolet Light Study
REPORT OF SURGERY

Registry number

4 —

1. Patient's name (Last, first, middle)		2. Home address (Street number, city or town, state)		3. Phone number													
4. Follow-up contacts, name a. b.		5. Address a. b.		6. Phone a. b.													
7. Age (If under 1 year, report months) Year of birth			8. Sex	9. Race <input type="checkbox"/> 1. White <input type="checkbox"/> 2. Nonwhite													
10. Patient previously operated on during this hospital stay <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, date 19..... Previous registry number <input type="checkbox"/> Nonstudy patient																	
11. Date of this operation (Month, day, year)			12. Days preop. hospitalization <input type="checkbox"/> Outpatient		13. Operating room number												
14. Summary of operative procedures <input type="checkbox"/> 1. Only 1 operation performed <input type="checkbox"/> 2. Multiple operations performed using a single, common incision <input type="checkbox"/> 3. Multiple operations performed using separate incisions (Separate surgery and follow-up reports must be prepared for each incision)																	
15. Operations and diagnoses (Names and code numbers). Note: List only those operations performed using a single, common incision. A separate "Report of Surgery" (form 6) should be prepared for each incision made. <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> a { Operation..... Diagnosis..... b { Operation..... Diagnosis..... c { Operation..... Diagnosis..... </div> <div style="width: 45%; text-align: center;"> Code <table border="1" style="margin: 0 auto; border-collapse: collapse;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> </div> </div>																16. Closure <input type="checkbox"/> 0. None, or incomplete <input type="checkbox"/> 1. Primary <input type="checkbox"/> 2. Secondary <input type="checkbox"/> 3. Skin graft as primary means <input type="checkbox"/> 9. Other (Specify)	
17. Drain site provided (Check one or more) <input type="checkbox"/> 0. None <input type="checkbox"/> 1. Subcutaneous, wound <input type="checkbox"/> 2. Serous cavity, wound <input type="checkbox"/> 3. Remote			18. Anesthesia (Check one or more) <input type="checkbox"/> 1. Inhalation, simple <input type="checkbox"/> 2. Inhalation with endotracheal intubation <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> 3. Intravenous <input type="checkbox"/> 4. Infiltration <input type="checkbox"/> 5. Spinal or epidural <input type="checkbox"/> 9. Other (Specify) </div> </div>														
19. Classification of operation* <input type="checkbox"/> 1. Clean <input type="checkbox"/> 2. Clean contaminated <input type="checkbox"/> 3. Contaminated <input type="checkbox"/> 4. Dirty																	
20. Factors predisposing for infection <input type="checkbox"/> 0. None <input type="checkbox"/> 1. Diabetes <input type="checkbox"/> 2. Steroid therapy <input type="checkbox"/> 3. Severe obesity <input type="checkbox"/> 4. Severe malnutrition <input type="checkbox"/> 9. Other (Specify)																	
21. Time operation began a.m. p.m.		22. Duration of operation hrs. min.		23. Urgency <input type="checkbox"/> 1. Elective <input type="checkbox"/> 2. Urgent* <input type="checkbox"/> 3. Emergency*													
24. Personnel (List permanent personnel by code number)** <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Assts. (incl. a. Surgeon c. Anesthetist e. Nurse g. Technicians </div> <div style="width: 45%;"> b. students assts.) d. Assistants f. Circulating assistants h. Students and visitors. (Number of persons) </div> </div>																	

* For definitions of terms, see back of report form.

** See back of report form for listing of personnel by name.

Item 19, Classification of operation

Clean:

- a. No inflammation encountered.
- b. No break technique.
- c. Gastrointestinal, respiratory tracts not entered.
 - 1. Transection appendix or cystic duct considered clean in absence of acute inflammation.
 - 2. Entrance GU or biliary tracts clean in absence of infected urine or bile.

Clean contaminated:

- a. Gastrointestinal, respiratory tracts entered, without significant spillage.
- b. Break technique, minor.
- c. Entrance GU or biliary tracts in presence of infected urine or bile.

Contaminated:

- a. Major break technique, viz emergency cardiac arrest.
- b. Acute bacterial inflammation encountered, without pus.
- c. Spillage from GI tract.
- d. Traumatic wound, fresh, from relatively clean source.

Dirty:

- a. Pus encountered.
- b. Perforated viscus.
- c. Traumatic wound, old, or from dirty source.

Item 23, Urgency

Urgent: Not electively scheduled, but delay of surgery 12 hours or more permissible.
Emergency: Surgery cannot be delayed 12 hours.

Item 24, Listing of personnel by name

a. Surgeon	e. Nurse
b. Assts. (incl. students assts.)	f. Circulating, assts.
.....
.....
.....
c. Anesthetist	
d. Assistants	g. Technicians
.....
.....
.....
.....

Cooperative Ultraviolet Light Study

Record room number

SUMMARY OF
HOSPITAL COURSE

Registry number

3 -

1. Patient's name (Last, first, middle initial)

2. Wound evaluation in hospital terminated by

- ☐ 1. Discharge (follow-up continuing postdischarge)
☐ 2. 14th PO day of hospitalization (follow-up continuing in hospital)
☐ 3. 28th PO day of hospitalization (follow-up completed)
☐ 4. Wound reopened before healing (follow-up completed)

- ☐ 5. Definite wound infection noted (follow-up completed)
☐ 9. Death (Specify cause)

3. Date of evaluation (Month, day, year)

Date..... PO day.....

4. Prophylactic antibiotics administered

- ☐ 0. None ☐ 1. Penicillin ☐ 2. Streptomycin ☐ 3. Tetracycline ☐ 4. Chloramphenicol ☐ 5. Erythromycin
☐ 6. Novobiocin ☐ 7. Preoperative nonsystemic bowel preparation ☐ 9. Other (Specify)

5. Inflammation of wound: ☐ 0. None ☐ 1. Inflammation present ☐ Unknown6. Tissue necrosis: ☐ 0. None ☐ 1. Attributable to ischemia due to tension of closure
☐ 2. Attributable to ischemia due to other factors ☐ Unknown7. Postoperative drainage: ☐ 0. None ☐ Present. If present, check the following where applicable.

- ☐ 1. Spontaneous drainage ☐ 2. Formal ward drainage performed ☐ Serous ☐ Sanguinous ☐ Purulent
☐ 9. Foul smelling

8. Discharge characteristics* (A "Bacteriological Data" report will be completed and attached for each discharge specimen cultured)

No Discharge	Discharge culture results		
	Pos.	Neg.	Unk.
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Incision proper, serous or sanguinous
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Incision proper, purulent
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Wound drain site, serous or sanguinous
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Wound drain site, purulent
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Remote drain site, serous or sanguinous
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Remote drain site, purulent

9. Clinical wound classification*

- ☐ 0. No infection
☐ 1. Stitch abscess only
☐ 2. Possible infection
☐ 6. Definite infection
 ☐ 3. Mild
 ☐ 4. Moderate
 ☐ 5. Severe
☐ Unknown

Infection
first
noted
PO
day10. Wound healing: ☐ 0. Without interference ☐ 1. Induced partial wound separation, healing secondary intention
☐ 2. Spontaneous partial wound separation, healing secondary intention
☐ 3. Spontaneous complete wound separation, healing secondary intention ☐ 4. Evisceration ☐ Unknown

11. Rectal (oral + 1°) temperature postoperative—highest recorded

- ☐ 1. Less than 101° ☐ 2. 101°, but less than 103° ☐ 3. 103° or higher

12. Wound complications other than above (i.e., improperly applied casts and/or dressings, Volkman's ischemic contracture) ☐ 0. None ☐ 1. One or more (Specify)

13. Other infections noted (A "Bacteriological Data" report will be completed and attached for each "Other Infection" specimen cultured)

Noted before or in the absence of wound infection	None	Skin	Resp.	GU	GI	Septi-cemia	Other (Specify)
	<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.	<input type="checkbox"/> 9.
Noted after wound infection	<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.	<input type="checkbox"/> 9.

14. Final clinical appraisal of wound for infection: ☐ 0. No infection ☐ 9. Infection present

If present: (Check reason and explain briefly)

- ☐ 1. Due to inherent pre- or postoperative contamination (i.e., preexisting infectious disease, or known break in PO care) ☐ 2. Occurring during operative procedure (i.e., known break in or difficulty with technique) ☐ Unknown

* See back of report form for a description of terms.

Note: A report of "Hospital Course" will be prepared for each hospitalized study patient on the 14th and 28th postoperative days of hospitalization, or on earlier discharge from the hospital, or when the wound is reopened before healing, or when a definite wound infection is noted.

Item 8, Discharge characteristics:

All wound drainage will be cultured. Drainage from drain sites will be cultured at 72 hours and thereafter at intervals of not more than 3 days, as long as drainage continues. Drainage from undrained wounds will be cultured at first discovery and thereafter at 48-hour intervals. Drainage from open wounds will be cultured at 72 hours, thereafter at 3-day intervals, and immediately at the time of secondary closure.

Item 9, Clinical wound classification:

Wounds will be considered uninfected if they heal per primum without discharge. They will be considered infected in the presence of purulent drainage. Wounds which are inflamed without drainage, or which drain culture-positive serous fluid, will be classified "possible infection" at present. A record will be maintained of the objective characteristics of such wounds so that their incidence in the irradiated and control groups may be compared in the absence of agreement as to how they should be categorized.

Stitch abscess will be separately classified. Stitch abscess will be arbitrarily defined in wounds fulfilling the following conditions:

- a. Per primum healing without drainage from the incision.
- b. Inflammation confined to the point of suture penetration.
- c. Drainage of minimal amounts from the point of suture penetration.
- d. Healing within 72 hours of suture removal.

The category "stitch abscess" will not pertain to wounds in which the incision itself shows any change other than per primum healing process in the incision itself.

Record room number

SUMMARY OF
POSTDISCHARGE STATUS

Registry number

1. Patient's name (Last, first, middle initial)

2. Wound evaluation terminated by

3. Date of evaluation (Month, day, year)

☐ 3. 28th PO day of observation

☐ 4. Wound reopened before healing

☐ 5. Definite wound infection noted

☐ 9. Death (Specify cause)

Date..... PO day.....

4. Nature of examination

☐ 3. Indirect, by contact with physician

☐ 1. By responsible surgeon

☐ 2. At hospital, by surgical staff

☐ 4. Indirect, by contact with patient

☐ 9. Other

5. Inflammation of wound

☐ 0. None

☐ 1. Inflammation present

☐ Unknown

6. Tissue necrosis

☐ 0. None

☐ 1. Attributable to ischemia due to tension of closure

☐ 2. Attributable to ischemia due to other factors

☐ Unknown

7. Postoperative drainage

☐ 0. None

☐ Present

If present, check the following where applicable

☐ 1. Spontaneous drainage

☐ 2. Formal ward drainage performed

☐ Serous

☐ Sanguinous

☐ Purulent.

☐ 9. Foul smelling

8. Discharge characteristics* (A "Bacteriological Data" report will be completed and attached for each discharge specimen cultured)

9. Clinical wound classification*

Discharge culture results			
No Discharge	Pos.	Neg.	Unk.
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Incision proper, serous or sanguinous
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Incision proper, purulent
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Wound drain site, serous or sanguinous
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Wound drain site, purulent
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Remote drain site, serous or sanguinous
<input type="checkbox"/> 0.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> Remote drain site, purulent

☐ 0. No infection

☐ 1. Stitch abscess only

☐ 2. Possible infection

☐ 6. Definite infection

☐ 3. Mild☐ 4. Moderate☐ 5. Severe

Infection first noted
PO day

☐ Unknown

10. Wound healing

☐ 0. Without interference

☐ 1. Induced partial wound separation, healing secondary intention

☐ 2. Spontaneous partial wound separation, healing secondary intention

☐ 3. Spontaneous complete wound separation, healing secondary intention

☐ 4. Evisceration

☐ Unknown

11. Rectal (oral +1°) temperature postoperative—highest recorded

☐ 1. Less than 101°

☐ 2. 101°, but less than 103°

☐ 3. 103° or higher

☐ Unknown

12. Wound complications other than above (i.e., improperly applied cases and/or dressings, Volkman's ischemic contrac-ture)

☐ 0. None

☐ 1. One or more (Specify)

13. Other infections noted (A "Bacteriological Data" report will be completed and attached for each "Other Infection" specimen cultured)

Noted before or in the absence of wound infection

Noted after wound infection

None

Skin

Resp.

GU

GI

Septi-cemia

Other (Specify)

☐ 0.☐ 1.☐ 2.☐ 3.☐ 4.☐ 5.☐ 9.

14. Final clinical appraisal of wound for infection

☐ 0. No infection

☐ 9. Infection present

If present: (Check reason and explain briefly)

☐ 1. Due to inherent pre- or postoperative contamination (i.e., preexisting infectious disease, or known break in PO care)

☐ 2. Occurring during operative procedure (i.e., known break in or difficulty with technique)

☐ Unknown

* See back of report form for a description of terms.

Note: A report of "Postdischarge Status" will be prepared for each discharged patient at the end of the 4th postoperative week. The "Hospital Course" report will be filed for patients hospitalized at the end of the 4th postoperative week.

Item 8, Discharge characteristics:

All wound drainage will be cultured. Drainage from drain sites will be cultured at 72 hours, and thereafter at intervals of not more than 3 days, as long as drainage continues. Drainage from undrained wounds will be cultured at first discovery and thereafter at 48-hour intervals. Drainage from open wounds will be cultured at 72 hours, thereafter at 3-day intervals, and immediately at the time of secondary closure.

Item 9, Clinical wound classification:

Wounds will be considered uninfected if they heal per primum without discharge. They will be considered infected in the presence of purulent drainage. Wounds which are inflamed without drainage, or which drain culture-positive serous fluid, will be classified "possible infection" at present. A record will be maintained of the objective characteristics of such wounds so that their incidence in the irradiated and control groups may be compared in the absence of agreement as to how they should be categorized.

Stitch abscess will be separately classified. Stitch abscess will be arbitrarily defined in wounds fulfilling the following conditions:

- a. Per primum healing without drainage from the incision.
- b. Inflammation confined to the point of suture penetration.
- c. Drainage of minimal amounts from the point of suture penetration.
- d. Healing within 72 hours of suture removal.

The category "stitch abscess" will not pertain to wounds in which the incision itself shows any change other than per primum healing process in the incision itself.

APPENDIX B

DETAILED DATA ON INCIDENCE OF SURGICAL WOUND INFECTION

Table B-1

Incidence of Infection by Age of Patient and
Classification of Operation, Combined Hospitals

Age of patient	Refined-clean wounds				Other clean wounds			
	Total	Number infected	Percent infected		Total	Number infected	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	6,656	222	3.3	3.4	5,034	372	7.4	7.3
< 1 yr.	169	6	3.6		65	2	3.1	
1-14 yrs.	616	14	2.3		243	14	5.8	
15-24 yrs.	560	13	2.3		334	10	3.0	
25-34 yrs.	858	30	3.5		522	33	6.3	
35-44 yrs.	1,178	32	2.7		969	65	6.7	
45-54 yrs.	1,276	40	3.1		1,065	75	7.0	
55-64 yrs.	1,054	47	4.5		915	81	8.9	
65-74 yrs.	673	27	4.0		658	69	10.5	
75+ yrs.	246	13	5.3		241	22	9.1	
Unknown	26	0	0.0		22	1	4.5	

Age of patient	Clean-contaminated wounds				Contaminated wounds			
	Total	Number infected	Percent infected		Total	Number infected	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	2,589	280	10.8	10.1	681	111	16.3	17.1
< 1 yr.	23	1	4.3		8	2	25.0	
1-14 yrs.	107	8	7.5		49	4	8.2	
15-24 yrs.	181	16	8.8		110	7	6.4	
25-34 yrs.	235	13	5.5		73	8	11.0	
35-44 yrs.	293	27	9.2		90	14	15.6	
45-54 yrs.	500	55	11.0		93	18	19.4	
55-64 yrs.	551	68	12.3		119	28	23.5	
65-74 yrs.	499	72	14.4		93	20	21.5	
75+ yrs.	197	19	9.6		45	9	20.0	
Unknown	3	1	33.3		1	1	100.0	

Age of patient	Dirty wounds				Classification unknown			Adjusted percent infected**
	Total	Number infected	Percent infected		Total	Number infected	Percent infected	
			Crude	Age* adjusted				
All ages	581	166	28.6	29.7	72	6	8.3	
< 1 yr.	5	3	60.0		1	0	0.0	6.6
1-14 yrs.	43	11	25.6		4	0	0.0	5.4
15-24 yrs.	55	13	23.6		5	0	0.0	4.6
25-34 yrs.	73	13	17.8		6	1	16.7	5.6
35-44 yrs.	76	17	22.4		13	0	0.0	6.4
45-54 yrs.	89	40	44.9		16	1	6.2	8.0
55-64 yrs.	116	35	30.2		19	2	10.5	9.0
65-74 yrs.	84	27	32.1		7	1	14.3	9.7
75+ yrs.	39	7	17.9		1	1	100.0	8.4
Unknown	1	0	0.0		0	0	-	

*Age adjusted: Infection rates for specific classifications of operations adjusted to a uniform age distribution.

**Infection rates by age of patient adjusted to a uniform classification of operation distribution.

Table B-2

Incidence of Infection by Age of Patient and Hospital

Age of patient	Hospital #1				Hospital #2			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	2,338	112	4.8	5.3	2,965	209	7.0	7.1
< 1 yr.	10	1	10.0		26	2	7.7	
1-14 yrs.	76	4	5.3		146	5	3.4	
15-24 yrs.	115	3	2.6		224	9	4.0	
25-34 yrs.	263	8	3.0		401	24	6.0	
35-44 yrs.	548	13	2.4		612	35	5.7	
45-54 yrs.	619	26	4.2		558	40	7.2	
55-64 yrs.	386	23	6.0		505	45	8.9	
65-74 yrs.	241	24	10.0		361	38	10.5	
75+ yrs.	68	9	13.2		125	11	8.8	
Not reported	12	1	8.3		7	0	0.0	

Age of patient	Hospital #3				Hospital #4			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	2,573	302	11.7	12.2	2,567	78	3.0	3.3
< 1 yr.	68	6	8.8		94	0	0.0	
1-14 yrs.	273	22	8.1		336	6	1.8	
15-24 yrs.	313	27	8.6		239	4	1.7	
25-34 yrs.	320	21	6.6		302	5	1.7	
35-44 yrs.	364	50	13.7		316	9	2.8	
45-54 yrs.	375	47	12.5		350	19	5.4	
55-64 yrs.	406	58	14.3		374	15	4.0	
65-74 yrs.	325	53	16.3		327	12	3.7	
75+ yrs.	116	16	13.8		224	8	3.6	
Not reported	13	2	15.4		5	0	0.0	

Age of patient	Hospital #5				Percent of wounds infected by age, adjusted to a uniform hospital distribution
	Total wounds	Infected wounds	Percent infected		
			Crude	Age* adjusted	
All ages	5,170	456	8.8	8.6	
< 1 yr.	73	5	6.8		6.7
1-14 yrs.	231	14	6.1		5.1
15-24 yrs.	354	16	4.5		4.3
25-34 yrs.	481	40	8.3		5.7
35-44 yrs.	779	48	6.2		6.2
45-54 yrs.	1,137	97	8.5		7.8
55-64 yrs.	1,103	120	10.9		9.2
65-74 yrs.	760	89	11.7		10.7
75+ yrs.	236	27	11.4		10.3
Not reported	16	0	0.0		

* Age adjusted: Infection rates for specific hospitals adjusted to a uniform age distribution.

Table B-3

Incidence of Infection by Age of Patient and
Duration of Operation, Combined Hospitals

Age of patient	Under 1/2 hour duration				1/2-1 hour duration			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	1,340	48	3.6	3.9	3,055	181	5.9	6.2
< 1 yr.	19	0	0.0		82	6	7.3	
1-14 yrs.	87	6	6.9		291	13	4.5	
15-24 yrs.	126	3	2.4		324	14	4.3	
25-34 yrs.	179	3	1.7		373	17	4.6	
35-44 yrs.	261	5	1.9		488	21	4.3	
45-54 yrs.	273	9	3.3		573	36	6.3	
55-64 yrs.	203	12	5.9		439	41	9.3	
65-74 yrs.	122	7	5.7		330	29	8.8	
75+ yrs.	56	3	5.4		140	4	2.9	
Unknown	14	0	0.0		15	0	0.0	

Age of patient	1-2 hours duration				2-3 hours duration			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	5,671	363	6.4	6.5	2,806	253	9.0	8.8
< 1 yr.	109	3	2.8		45	5	11.1	
1-14 yrs.	438	13	3.0		140	10	7.1	
15-24 yrs.	460	26	5.7		168	4	2.4	
25-34 yrs.	682	41	6.0		309	19	6.1	
35-44 yrs.	949	50	5.3		489	40	8.2	
45-54 yrs.	1,077	72	6.7		571	49	8.6	
55-64 yrs.	948	74	7.8		545	54	9.9	
65-74 yrs.	695	59	8.5		390	51	13.1	
75+ yrs.	299	24	8.0		144	20	13.9	
Unknown	14	1	7.1		5	1	20.0	

Age of patient	3-4 hours duration				4-5 hours duration			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	1,295	129	10.0	9.5	651	71	10.9	10.5
< 1 yr.	9	0	0.0		4	0	0.0	
1-14 yrs.	69	6	8.7		21	2	9.5	
15-24 yrs.	81	5	6.2		31	2	6.5	
25-34 yrs.	116	9	7.8		59	6	10.2	
35-44 yrs.	205	15	7.3		110	17	15.5	
45-54 yrs.	257	26	10.1		131	11	8.4	
55-64 yrs.	272	26	9.6		147	11	7.5	
65-74 yrs.	220	33	15.0		113	15	13.3	
75+ yrs.	65	9	13.8		33	6	18.2	
Unknown	1	0	0.0		2	1	50.0	

Age of patient	5-6 hours duration				6 hours duration or more			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	337	52	15.4	13.4	267	47	17.6	15.0
< 1 yr.	0	0	-		0	0	-	
1-14 yrs.	5	1	20.0		5	0	0.0	
15-24 yrs.	24	1	4.2		20	3	15.0	
25-34 yrs.	23	1	4.3		11	1	9.1	
35-44 yrs.	42	1	2.4		35	6	17.1	
45-54 yrs.	66	13	19.7		53	8	15.1	
55-64 yrs.	103	23	22.3		84	18	21.4	
65-74 yrs.	61	10	16.4		50	10	20.0	
75+ yrs.	12	2	16.7		9	1	11.1	
Unknown	1	0	0.0		0	0	-	

Age of patient	Duration not reported			Percent of wounds infected by age, adjusted to a uniform duration of operation distribution
	Total wounds	Infected wounds	Percent infected	
All ages	191	13	6.8	
< 1 yr.	3	0	0.0	4.5
1-14 yrs.	6	0	0.0	5.5
15-24 yrs.	11	1	9.1	4.7
25-34 yrs.	15	1	6.7	5.7
35-44 yrs.	40	0	0.0	6.1
45-54 yrs.	38	5	13.2	7.5
55-64 yrs.	33	2	6.1	9.0
65-74 yrs.	33	2	6.1	10.3
75+ yrs.	11	2	18.2	9.0
Unknown	1	0	0.0	

*Age adjusted: Infection rates for specific durations of operations adjusted to a uniform age distribution.

Table B-4

Incidence of Infection by Age of Patient and Nutritional
and Metabolic Patient Factors, Combined Hospitals

Age of patient	Diabetes				Without diabetes			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	356	37	10.4	7.2	15,128	1,108	7.3	7.4
< 1 yr.	0	0	-	-	268	12	4.5	
1-14 yrs.	0	0	-	-	1,052	50	4.8	
15-24 yrs.	3	0	0.0		1,232	59	4.8	
25-34 yrs.	7	0	0.0		1,749	96	5.5	
35-44 yrs.	30	1	3.3		2,574	152	5.9	
45-54 yrs.	61	9	14.8		2,951	219	7.4	
55-64 yrs.	103	11	10.7		2,646	249	9.4	
65-74 yrs.	112	13	11.6		1,885	202	10.7	
75+ yrs.	40	3	7.5		718	66	9.2	
Unknown	0	0	-		53	3	5.7	

Age of patient	Steroid therapy				No steroid therapy			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	119	19	16.0	12.2	15,365	1,126	7.3	7.4
< 1 yr.	1	0	0.0		267	12	4.5	
1-14 yrs.	2	0	0.0		1,050	50	4.8	
15-24 yrs.	10	4	40.0		1,225	55	4.5	
25-34 yrs.	15	2	13.3		1,741	94	5.4	
35-44 yrs.	10	0	0.0		2,594	153	5.9	
45-54 yrs.	21	2	9.5		2,991	226	7.6	
55-64 yrs.	38	10	26.3		2,711	250	9.2	
65-74 yrs.	17	0	0.0		1,980	215	10.9	
75+ yrs.	5	1	20.0		753	68	9.0	
Unknown	0	0	-		53	3	5.7	

Age of patient	Severe obesity				Without severe obesity			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	166	30	18.1	18.5	15,318	1,115	7.3	7.3
< 1 yr.	1	0	0.0		267	12	4.5	
1-14 yrs.	4	1	25.0		1,048	49	4.7	
15-24 yrs.	14	4	28.6		1,221	55	4.5	
25-34 yrs.	13	2	15.4		1,743	94	5.4	
35-44 yrs.	27	3	11.1		2,577	150	5.8	
45-54 yrs.	36	9	25.0		2,976	219	7.4	
55-64 yrs.	29	4	13.8		2,720	256	9.4	
65-74 yrs.	35	5	14.3		1,962	210	10.7	
75+ yrs.	6	2	33.3		752	67	8.9	
Unknown	1	0	0.0		52	3	5.8	

Age of patient	Severe malnutrition				Without severe malnutrition			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	67	15	22.4	18.9	15,417	1,130	7.3	7.4
< 1 yr.	1	0	0.0		267	12	4.5	
1-14 yrs.	0	0	-		1,052	50	4.8	
15-24 yrs.	1	0	0.0		1,234	59	4.8	
25-34 yrs.	3	0	0.0		1,753	96	5.5	
35-44 yrs.	7	2	28.6		2,597	151	5.8	
45-54 yrs.	12	3	25.0		3,000	225	7.5	
55-64 yrs.	27	5	18.5		2,722	255	9.4	
65-74 yrs.	11	5	45.5		1,986	210	10.6	
75+ yrs.	5	0	0.0		753	69	9.2	
Unknown	0	0	-		53	3	5.7	

Age of patient	Patient factors not reported			Percent of wounds infected by age, adjusted to a uniform distribution of wounds for: **			
	Total wounds	Infected wounds	Percent infected	Diabetes	Steroids	Obesity	Malnutrition
All ages	129	12	9.3				
< 1 yr.	3	2	66.7	**	**	**	**
1-14 yrs.	10	1	10.0	**	**	**	**
15-24 yrs.	10	0	0.0	**	4.7	4.7	**
25-34 yrs.	11	2	18.2	**	5.4	5.5	**
35-44 yrs.	15	2	13.3	5.8	5.8	5.8	**
45-54 yrs.	27	1	3.7	7.5	7.6	7.6	7.5
55-64 yrs.	25	1	4.0	9.4	9.3	9.4	9.4
65-74 yrs.	17	1	5.9	10.7	10.8	10.7	10.7
75+ yrs.	11	2	18.2	9.1	**	**	**
Unknown	0	0	-				

* Age adjusted: Infection rates for specific metabolic or nutritional factors adjusted to a uniform age distribution.

** Fewer than 10 wounds for patients with specific metabolic or nutritional conditions. Adjusted rates not computed.

Table B-5

Incidence of Infection by Age of Patient and Duration
of Preoperative Hospitalization, Combined Hospitals

Age of patient	Outpatient				Under 2 days			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	403	12	3.0	3.0	6,783	405	6.0	6.4
< 1 yr.	0	0	-		131	5	3.8	
1-14 yrs.	9	0	0.0		652	29	4.4	
15-24 yrs.	59	0	0.0		782	34	4.3	
25-34 yrs.	71	3	4.2		949	45	4.7	
35-44 yrs.	70	1	1.4		1,289	65	5.0	
45-54 yrs.	67	3	4.5		1,259	85	6.8	
55-64 yrs.	74	4	5.4		858	72	8.4	
65-74 yrs.	27	0	0.0		614	49	8.0	
75+ yrs.	10	1	10.0		231	19	8.2	
Unknown	16	0	0.0		18	2	11.1	

Age of patient	2-6 days				7-13 days			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	4,820	354	7.3	7.1	1,932	176	9.1	8.8
< 1 yr.	84	3	3.6		21	4	19.0	
1-14 yrs.	288	12	4.2		60	3	5.0	
15-24 yrs.	244	11	4.5		81	7	8.6	
25-34 yrs.	466	25	5.4		166	14	8.4	
35-44 yrs.	772	44	5.7		273	23	8.4	
45-54 yrs.	988	80	8.1		398	26	6.5	
55-64 yrs.	988	74	7.5		442	50	11.3	
65-74 yrs.	725	81	11.2		346	38	11.0	
75+ yrs.	254	23	9.1		142	11	7.7	
Unknown	11	1	9.1		3	0	0.0	

Age of patient	14-20 days				21 days or more			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	746	82	11.0	10.9	773	114	14.7	13.7
< 1 yr.	12	0	0.0		21	2	9.5	
1-14 yrs.	24	4	16.7		17	2	11.8	
15-24 yrs.	25	2	8.0		41	5	12.2	
25-34 yrs.	52	6	11.5		45	4	8.9	
35-44 yrs.	93	9	9.7		90	10	11.1	
45-54 yrs.	145	13	9.0		165	21	12.7	
55-64 yrs.	191	28	14.7		191	29	15.2	
65-74 yrs.	138	14	10.1		139	30	21.6	
75+ yrs.	64	6	9.4		62	11	17.7	
Unknown	2	0	0.0		2	0	0.0	

Age of patient	Days preoperative hospitalization not reported			Percent of wounds infected by age, adjusted to a uniform distribution of days preoperative hospitalization
	Total wounds	Infected wounds	Percent infected	
All ages	156	14	9.0	
< 1 yr.	2	0	0.0	5.6
1-14 yrs.	12	1	8.3	5.3
15-24 yrs.	13	0	0.0	5.4
25-34 yrs.	18	1	5.6	5.9
35-44 yrs.	32	3	9.4	6.1
45-54 yrs.	17	1	5.9	7.5
55-64 yrs.	30	4	13.3	9.0
65-74 yrs.	25	4	16.0	9.9
75+ yrs.	6	0	0.0	9.0
Unknown	1	0	0.0	

* Age adjusted: Infection rate for specific durations of preoperative hospitalization adjusted to a uniform age distribution.

Table B-6
Incidence of Infection by Sex of Patient and Classification
of Operation, Combined Hospitals

Classification of operation	Male			Female			Sex not reported			Race adjusted percent infected**
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Total wounds	7,356	588	8.0	8,242	568	6.9	15	1	6.7	
Refined-clean	3,181	104	3.3	3,471	118	3.4	4	0	0.0	3.4
Other clean	1,940	149	7.7	3,090	223	7.2	4	0	0.0	7.4
Clean-contaminated	1,413	162	11.5	1,173	117	10.0	3	1	33.3	10.7
Contaminated	418	63	15.1	263	48	18.3	0	0	-	16.8
Dirty	361	106	29.4	216	60	27.8	4	0	0.0	28.6
Unknown	43	4	9.3	29	2	6.9	0	0	-	
Adjusted rate*			7.6			7.3				

*Adjusted rate: Incidence of infection for each sex adjusted to a uniform classification of operation distribution.

**Percent of wounds infected by classification of operation adjusted to a uniform sex distribution.

Table B-7
Incidence of Infection by Race of Patient and Hospital

	White			Non-white			Race not reported			Race adjusted percent infected**
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Hospital										
Combined hospitals	11,745	889	7.6	3,613	246	6.8	255	22	8.6	
1	1,892	83	4.4	430	29	6.7	16	0	0.0	4.9
2	2,184	147	6.7	768	62	8.1	13	0	0.0	7.0
3	2,265	275	12.1	135	10	7.4	173	17	9.8	11.0
4	1,057	36	3.4	1,500	41	2.7	10	1	10.0	3.2
5	4,347	348	8.0	780	104	13.3	43	4	9.3	9.2
Adjusted rate*			7.1			8.6				

*Adjusted rate: Incidence of infection for each race adjusted to a uniform hospital distribution.

**Percent of wounds infected by hospital adjusted to a uniform racial distribution.

Table B-8

**Incidence of Infection by Race of Patient and Nutritional
and Metabolic Patient Factors, Combined Hospitals**

Race of patient	Diabetes				Without diabetes			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Race* adjusted			Crude	Race* adjusted
All races	356	37	10.4	10.5	15,128	1,108	7.3	7.3
White	210	22	10.5		11,444	860	7.5	
Nonwhite	142	15	10.6		3,437	226	6.6	
Unknown	4	0	0.0		247	22	8.9	

Race of patient	Steroid therapy				Without steroid therapy			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Race* adjusted			Crude	Race* adjusted
All races	119	19	16.0	15.2	15,365	1,126	7.3	7.3
White	94	16	17.0		11,560	866	7.5	
Nonwhite	21	2	9.5		3,558	239	6.7	
Unknown	4	1	25.0		247	21	8.5	

Race of patient	Severe obesity				Without severe obesity			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Race* adjusted			Crude	Race* adjusted
All races	166	30	18.1	17.8	15,318	1,115	7.3	7.2
White	132	27	20.5		11,522	855	7.4	
Nonwhite	33	3	9.1		3,546	238	6.7	
Unknown	1	0	0.0		250	22	8.8	

Race of patient	Severe malnutrition				Without severe malnutrition			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Race* adjusted			Crude	Race* adjusted
All races	67	15	22.4	18.4	15,417	1,130	7.3	7.3
White	58	14	24.1		11,596	868	7.5	
Nonwhite	8	0	0.0		3,571	241	6.7	
Unknown	1	1	100.0		250	21	8.4	

Race of patient	Patient factors not reported			Percent of wounds infected by race, adjusted to a uniform distribution of wounds for:			
	Total wounds	Infected wounds	Percent infected	Diabetes	Steroid	Obesity	Malnutrition
All races	129	12	9.3				
White	91	7	7.7	7.6	7.6	7.5	7.6
Nonwhite	34	5	14.7	6.7	6.7	6.7	6.7
Unknown	4	0	0.0				

*Race adjusted: Incidence of infection for each nutritional and metabolic factor adjusted to a uniform racial distribution.

Table B-9

Incidence of Infection by Race and
Age of Patient, Combined Hospitals

Age of patient	White				Non-white			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Age* adjusted			Crude	Age* adjusted
All ages	11,745	889	7.6	7.5	3,613	246	6.8	7.2
< 1 yr.	146	8	5.5		116	6	5.2	
1-14 yrs.	723	40	5.5		323	11	3.4	
15-24 yrs.	897	47	5.2		321	11	3.4	
25-34 yrs.	1,226	70	5.7		515	26	5.0	
35-44 yrs.	1,934	107	5.5		659	43	6.5	
45-54 yrs.	2,378	171	7.2		627	53	8.5	
55-64 yrs.	2,213	210	9.5		515	46	8.9	
65-74 yrs.	1,622	178	11.0		360	36	10.0	
75+ yrs.	582	55	9.5		175	14	8.0	
Unknown	24	3	12.5		2	0	0.0	

Age of patient	Race not reported			Percent of wounds infected by age, adjusted to a uniform age distribution
	Total wounds	Infected wounds	Percent infected	
All ages	255	22	8.6	
< 1 yr.	9	0	0.0	5.4
1-14 yrs.	16	0	0.0	5.0
15-24 yrs.	27	1	3.7	4.8
25-34 yrs.	26	2	7.7	5.5
35-44 yrs.	26	5	19.2	5.7
45-54 yrs.	34	5	14.7	7.5
55-64 yrs.	46	5	10.9	9.4
65-74 yrs.	32	2	6.2	10.8
75+ yrs.	12	2	16.7	9.1
Unknown	27	0	0.0	

*Age adjusted: Incidence of infection for each race adjusted to a uniform age distribution.

Table B-10

Incidence of Infection by Race of Patient and
Classification of Operation, Combined Hospitals

Classification of operation	White				Non-white			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All classifications	11,745	889	7.6	7.8	3,613	246	6.8	6.3
Refined-clean	5,037	169	3.4		1,517	49	3.2	
Other clean	3,924	303	7.7		1,009	65	6.4	
Clean-contaminated	1,887	211	11.2		670	61	9.1	
Contaminated	463	85	18.4		208	23	11.1	
Dirty	374	117	31.3		198	46	23.2	
Unknown	60	4	6.7		11	2	18.2	

Classification of operation	Race not reported			Percent of wounds infected by classification of operation adjusted to a uniform classification of operation distribution
	Total wounds	Infected wounds	Percent infected	
All classifications	255	22	8.6	
Refined-clean	102	4	3.9	3.4
Other clean	101	4	4.0	7.4
Clean-contaminated	32	8	25.0	10.7
Contaminated	10	3	30.0	16.7
Dirty	9	3	33.3	29.4
Unknown	1	0	0.0	

*Adjusted: Incidence of infection for each race adjusted to a uniform classification of operation distribution.

Table B-11

Incidence of Infection by Certain Metabolic and Nutritional
Patient Factors and Classification of Operation, Combined Hospitals

Classification of operation	Diabetes				Without diabetes			
	Total wounds	Infected wounds	Percent infected Crude Adjusted*		Total wounds	Infected wounds	Percent infected Crude Adjusted*	
All classifications	356	37	10.4	7.9	15,128	1,108	7.3	7.4
Refined-clean	104	2	1.9		6,524	219	3.4	
Other clean	107	10	9.3		4,889	358	7.3	
Clean-contaminated	71	11	15.5		2,486	269	10.8	
Contaminated and dirty	69	13	18.8		1,180	259	21.9	
Unknown	5	1	20.0		49	3	6.1	

Classification of operation	Steroid therapy				Without steroid therapy			
	Total wounds	Infected wounds	Percent infected Crude Adjusted*		Total wounds	Infected wounds	Percent infected Crude Adjusted*	
All classifications	119	19	16.0	15.2	15,365	1,126	7.3	7.3
Refined-clean	29	3	10.3		6,599	218	3.3	
Other clean	55	6	10.9		4,941	362	7.3	
Clean-contaminated	19	6	31.6		2,538	274	10.8	
Contaminated and dirty	16	4	25.0		1,233	268	21.7	
Unknown	0	0	-		54	4	7.4	

Classification of operation	Severe obesity				Without severe obesity			
	Total wounds	Infected wounds	Percent infected Crude Adjusted*		Total wounds	Infected wounds	Percent infected Crude Adjusted*	
All classifications	166	30	18.1	17.2	15,318	1,115	7.3	7.3
Refined-clean	45	5	11.1		6,583	216	3.3	
Other clean	65	17	26.2		4,931	351	7.1	
Clean-contaminated	40	4	10.0		2,517	276	11.0	
Contaminated and dirty	14	4	28.6		1,235	268	21.7	
Unknown	2	0	0.0		52	4	7.7	

Classification of operation	Severe malnutrition				Without severe malnutrition			
	Total wounds	Infected wounds	Percent infected Crude Adjusted*		Total wounds	Infected wounds	Percent infected Crude Adjusted*	
All classifications	67	15	22.4	13.7	15,417	1,130	7.3	7.4
Refined-clean	13	2	15.4		6,615	219	3.3	
Other clean	9	0	0.0		4,987	368	7.4	
Clean-contaminated	30	6	20.0		2,527	274	10.8	
Contaminated and dirty	15	7	46.7		1,234	265	21.5	
Unknown	0	0	-		54	4	7.4	

Classification of operation	Patient factors not reported			Percent of wounds infected by classification of operation adjusted to a uniform distribution of wounds for:			
	Total wounds	Infected wounds	Percent infected	Diabetes	Steroid	Obesity	Malnutrition
All classification	129	12	9.3				
Refined-clean	28	1	3.6	3.3	3.4	3.4	3.4
Other clean	38	4	10.5	7.3	7.3	7.3	7.4
Clean-contaminated	32	0	0.0	10.9	11.0	11.0	10.9
Contaminated and dirty	13	5	38.5	21.8	21.7	21.8	21.6
Unknown	18	2	11.1				

*Adjusted: Incidence of infection for each nutritional and metabolic factor adjusted to a uniform classification of operation distribution.

Table B-12

Incidence of Infection by Certain Metabolic and Nutritional Patient Factors
and Duration of Operation, Combined Hospitals

Duration of operation	Diabetes				Without diabetes			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	356	37	10.4	10.5	15,128	1,108	7.3	7.3
Under 30 min.	38	5	13.2		1,294	43	3.3	
30-59 min.	71	6	8.5		2,960	172	5.8	
1 < 2 hrs.	150	16	10.7		5,485	342	6.2	
2 < 3 hrs.	51	5	9.8		2,732	246	9.0	
3 < 4 hrs.	17	4	23.5		1,256	124	9.9	
4 < 5 hrs.	14	0	0.0		630	70	11.1	
5 < 6 hrs.	6	0	0.0		328	52	15.9	
6+ hrs.	5	0	0.0		259	47	18.1	
Unknown	4	1	25.0		184	12	6.5	

Duration of operation	Steroid therapy				Without steroid therapy			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	119	19	16.0	10.2	15,365	1,126	7.3	7.3
Under 30 min.	9	1	11.1		1,323	47	3.6	
30-59 min.	6	0	0.0		3,025	178	5.9	
1 < 2 hrs.	42	4	9.5		5,593	354	6.3	
2 < 3 hrs.	28	5	17.9		2,755	246	8.9	
3 < 4 hrs.	11	1	9.1		1,262	127	10.1	
4 < 5 hrs.	8	0	0.0		636	70	11.0	
5 < 6 hrs.	4	1	25.0		330	51	15.5	
6+ hrs.	10	7	70.0		254	40	15.7	
Unknown	1	0	0.0		187	13	7.0	

Duration of operation	Severe obesity				Without severe obesity			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	166	30	18.1	16.5	15,318	1,115	7.3	7.3
Under 30 min.	6	0	0.0		1,326	48	3.6	
30-59 min.	16	1	6.2		3,015	177	5.9	
1 < 2 hrs.	46	10	21.7		5,589	348	6.2	
2 < 3 hrs.	49	8	16.3		2,734	243	8.9	
3 < 4 hrs.	33	7	21.2		1,240	121	9.8	
4 < 5 hrs.	5	2	40.0		639	68	10.6	
5 < 6 hrs.	7	0	0.0		327	52	15.9	
6+ hrs.	4	2	50.0		260	45	17.3	
Unknown	0	0	-		188	13	6.9	

Duration of operation	Severe malnutrition				Without severe malnutrition			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	67	15	22.4	16.2	15,417	1,130	7.3	7.3
Under 30 min.	1	0	0.0		1,331	48	3.6	
30-59 min.	9	1	11.1		3,022	177	5.9	
1 < 2 hrs.	25	4	16.0		5,610	354	6.3	
2 < 3 hrs.	15	2	13.3		2,768	249	9.0	
3 < 4 hrs.	9	5	55.6		1,264	123	9.7	
4 < 5 hrs.	2	0	0.0		642	70	10.9	
5 < 6 hrs.	1	0	0.0		333	52	15.6	
6+ hrs.	5	3	60.0		259	44	17.0	
Unknown	0	0	-		188	13	6.9	

Duration of operation	Patient factors not reported			Percent of wounds infected by duration of operation, adjusted to a uniform distribution of wounds for:			
	Total wounds	Infected wounds	Percent infected	Diabetes	Steroid	Obesity	Malnutrition
All wounds	129	12	9.3				
Under 30 min.	8	0	0.0	3.5	3.7	3.6	3.6
30-59 min.	24	3	12.5	5.9	5.9	5.9	5.9
1 < 2 hrs.	36	5	13.9	6.3	6.3	6.4	6.3
2 < 3 hrs.	23	2	8.7	9.0	9.0	9.0	9.0
3 < 4 hrs.	22	1	4.5	10.2	10.1	9.9	9.9
4 < 5 hrs.	7	1	14.3	10.8	10.9	10.9	10.9
5 < 6 hrs.	3	0	0.0	15.5	15.6	15.7	15.5
6+ hrs.	3	0	0.0	17.7	16.1	17.7	17.2
Unknown	3	0	0.0				

*Adjusted: Incidence of infection for each metabolic and nutritional factors adjusted to a uniform duration of operation distribution.

Table B-13

Incidence of Infection by Certain Metabolic and
Nutritional Patient Factors and Urgency, Combined Hospitals

Urgency of operation	Diabetes				Without diabetes			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Urgency*			Crude	Urgency*
All wounds	356	37	10.4	9.9	15,128	1,108	7.3	7.4
Elective	284	29	10.2		12,816	840	6.6	
Urgent	39	8	20.5		794	90	11.3	
Emergency	22	0	0.0		1,298	160	12.3	
Unknown	11	0	0.0		220	18	8.2	

Urgency of operation	Steroid therapy				Without steroid therapy			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Urgency*			Crude	Urgency*
All wounds	119	19	16.0	14.0	15,365	1,126	7.3	7.3
Elective	85	11	12.9		13,015	858	6.6	
Urgent	15	2	13.3		818	96	11.7	
Emergency	16	4	25.0		1,304	156	12.0	
Unknown	3	2	66.7		228	16	7.0	

Urgency of operation	Severe obesity				Without severe obesity			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Urgency*			Crude	Urgency*
All wounds	166	30	18.1	18.0	15,318	1,115	7.3	7.3
Elective	135	24	17.8		12,965	845	6.5	
Urgent	11	2	18.2		822	96	11.7	
Emergency	15	3	20.0		1,305	157	12.0	
Unknown	5	1	20.0		226	17	7.5	

Urgency of operation	Severe malnutrition				Without severe malnutrition			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Urgency*			Crude	Urgency*
All wounds	67	15	22.4	21.0	15,417	1,130	7.3	7.3
Elective	46	9	19.6		13,054	860	6.6	
Urgent	5	1	20.0		828	97	11.7	
Emergency	14	5	35.7		1,306	155	11.9	
Unknown	2	0	0.0		229	18	7.9	

Urgency of operation	Patient factors not reported			Percent of wounds infected by urgency of operation, adjusted to a uniform distribution of wounds for:			
	Total wounds	Infected wounds	Percent infected	Diabetes	Steroid	Obesity	Malnutrition
All wounds	129	12	9.3				
Elective	83	8	9.6	6.7	6.6	6.6	6.7
Urgent	13	1	7.7	11.5	11.7	11.8	11.7
Emergency	14	1	7.1	12.0	12.1	12.1	12.0
Unknown	19	2	10.5				

*Adjusted: Incidence of infection for each metabolic and nutritional factor adjusted to a uniform urgency of operation distribution.

Table B-14

Incidence of Infection by Certain Metabolic and Nutritional Patient Factors
and Duration of Preoperative Hospitalization, Combined Hospitals

Duration of preoperative hospitalization	Diabetes				Without diabetes			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	356	37	10.4	9.1	15,128	1,108	7.3	7.4
Outpatient	0	0	-		402	12	3.0	
< 2 days	73	6	8.2		6,660	394	5.9	
2-6 days	124	8	6.5		4,654	342	7.3	
7-13 days	77	11	14.3		1,841	163	8.9	
14-20 days	35	5	14.3		706	77	10.9	
21+ days	42	6	14.3		716	107	14.9	
Unknown	5	1	20.0		149	13	8.7	

Duration of preoperative hospitalization	Steroid therapy				Without steroid therapy			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	119	19	16.0	13.2	15,365	1,126	7.3	7.4
Outpatient	0	0	-		402	12	3.0	
< 2 days	20	2	10.0		6,713	398	5.9	
2-6 days	22	3	13.6		4,756	347	7.3	
7-13 days	37	6	16.2		1,881	168	8.9	
14-20 days	17	5	29.4		724	77	10.6	
21+ days	20	3	15.0		738	110	14.9	
Unknown	3	0	0.0		151	14	9.3	

Duration of preoperative hospitalization	Severe obesity				Without severe obesity			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	166	30	18.1	18.3	15,318	1,115	7.3	7.4
Outpatient	0	0	-		402	12	3.0	
< 2 days	62	12	19.4		6,671	388	5.8	
2-6 days	56	10	17.9		4,722	340	7.2	
7-13 days	25	4	16.0		1,893	170	9.0	
14-20 days	11	1	9.1		730	81	11.1	
21+ days	8	2	25.0		750	111	14.8	
Unknown	4	1	25.0		150	13	8.7	

Duration of preoperative hospitalization	Severe malnutrition				Without severe malnutrition			
	Total wounds	Infected wounds	Percent infected		Total wounds	Infected wounds	Percent infected	
			Crude	Adjusted*			Crude	Adjusted*
All wounds	67	15	22.4	27.4	15,417	1,130	7.3	7.5
Outpatient	0	0	-		402	12	3.0	
< 2 days	13	5	38.5		6,720	395	5.9	
2-6 days	15	3	20.0		4,763	347	7.3	
7-13 days	13	2	15.4		1,905	172	9.0	
14-20 days	12	4	33.3		729	78	10.7	
21+ days	10	0	0.0		748	113	15.1	
Unknown	4	1	25.0		150	13	8.7	

Duration of preoperative hospitalization	Patient factors not reported			Percent of wounds infected by duration of preoperative hospitalization, adjusted to a uniform distribution of wounds for:			
	Total wounds	Infected wounds	Percent infected	Diabetes	Steroid	Obesity	Malnutrition
All wounds	129	12	9.3				
Outpatient	1	0	0.0	**	**	**	**
< 2 days	50	5	10.0	5.9	5.9	5.9	6.0
2-6 days	42	4	9.5	7.2	7.3	7.3	7.3
7-13 days	14	2	14.3	8.9	8.9	9.0	9.0
14-20 days	5	0	0.0	11.0	10.7	11.0	10.7
21+ days	15	1	6.7	14.8	14.8	14.8	14.9
Unknown	2	0	0.0				

*Adjusted: Incidence of infection for each metabolic and nutritional factor adjusted to a uniform duration of preoperative hospital stay distribution.

**Fewer than 10 patients with specific patient factor.

Table B-15

Incidence of Wound Infection by Remote Infection
and Classification of Operation, Combined Hospitals

Classification of operation	Remote infection									Adjusted percent infected**
	None			One or more			Unknown			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	14,732	993	6.7	799	147	18.4	82	17	20.7	
Clean	11,197	538	4.8	438	51	11.6	55	5	9.1	5.1
Clean-contaminated	2,345	238	10.1	230	36	15.7	14	6	42.9	10.4
Contaminated	621	88	14.2	57	22	38.6	3	1	33.3	15.5
Dirty	504	124	24.6	71	38	53.5	6	4	66.7	26.1
Unknown	65	5	7.7	3	0	0.0	4	1	25.0	
Adjusted rate*			6.8			15.0				

*Incidence of infection by remote infection adjusted to a uniform classification of operation distribution.

**Incidence of infection by classification of operation adjusted to a uniform remote infection distribution.

Table B-16

Incidence of Wound Infection by Remote Infection and Duration of Operation, Combined Hospitals

Duration of operation	Remote infection									Adjusted percent infected**
	None			One or more			Unknown			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	14,732	993	6.7	799	147	18.4	82	17	20.7	
< 30 min.	1,300	42	3.2	25	5	20.0	15	1	6.7	4.1
30-59 min.	2,957	158	5.3	85	21	24.7	13	2	15.4	6.3
1< 2 hrs.	5,382	312	5.8	273	47	17.2	16	4	25.0	6.4
2< 3 hrs.	2,606	217	8.3	186	36	19.4	14	0	0.0	8.9
3< 4 hrs.	1,184	108	9.1	106	19	17.9	5	2	40.0	9.6
4< 5 hrs.	587	58	9.9	54	8	14.8	10	5	50.0	10.2
5< 6 hrs.	306	46	15.0	28	4	14.3	3	2	66.7	15.0
6+ hrs.	237	41	17.3	27	5	18.5	3	1	33.3	17.4
Unknown	173	11	6.4	15	2	13.3	3	0	0.0	
Adjusted rate*			6.8			19.2				

*Incidence of infection by remote infections adjusted to a uniform duration of operation distribution.

**Incidence of infection by duration of operation adjusted to a uniform remote infections distribution.

Table B-17

Incidence of Wound Infection by Remote Infection and Age of Patient, Combined Hospitals

Age of patient	Remote infection									Adjusted percent infected*
	None			One or more			Unknown			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All ages	14,732	993	6.7	799	147	18.4	82	17	20.7	
Under 1 year	263	13	4.9	7	1	14.3	1	0	0.0	5.4
1-14 years	1,035	46	4.4	24	5	20.8	3	0	0.0	5.2
15-24 years	1,185	51	4.3	53	8	15.1	7	0	0.0	4.9
25-34 years	1,691	88	5.2	66	9	13.6	10	1	10.0	5.6
35-44 years	2,509	136	5.4	97	18	18.6	13	1	7.7	6.1
45-54 years	2,861	198	6.9	164	28	17.1	14	3	21.4	7.4
55-64 years	2,585	224	8.7	176	34	19.3	13	3	23.1	9.2
65-74 years	1,852	178	9.6	152	33	21.7	10	5	50.0	10.2
75+ years	705	56	7.9	55	11	20.0	9	4	44.4	8.5
Unknown	46	3	6.5	5	0	0.0	2	0	0.0	
Adjusted rate*			6.8			18.1				

*Incidence of infection by remote infection adjusted to a uniform age of patient distribution.

**Incidence of infection by age of patient adjusted to a uniform remote infection distribution.

Table B-18

Incidence of Wound Infection by Remote Infection and Urgency of Operation, Combined Hospitals

Urgency of operation	Remote infection									Adjusted percent infected**
	None			One or more			Unknown			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	14,732	993	6.7	799	147	18.4	82	17	20.7	6.6 10.8 11.5
Elective	12,511	775	6.2	601	89	14.8	71	13	18.3	
Urgent	758	76	10.0	84	21	25.0	4	2	50.0	
Emergency	1,227	127	10.4	101	32	31.7	6	2	33.3	
Unknown	236	15	6.4	13	5	38.5	1	0	0.0	
Adjusted rate*			6.8			16.8				

*Incidence of infection by remote infection adjusted to a uniform urgency of operation distribution.

**Incidence of infection by urgency of operation adjusted to a uniform remote infection distribution.

Table B-19

Incidence of Wound Infection by Remote Infection and Nutritional and Metabolic Patient Factors, Combined Hospitals

Nutritional and metabolic patient factors	Remote infection									Adjusted percent infected
	None			One or more			Unknown			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	14,732	993	6.7	799	147	18.4	82	17	20.7	
With diabetes	323	30	9.3	33	7	21.2	0	0	-	9.9
Without diabetes	14,295	955	6.7	754	137	18.2	79	16	20.3	7.3
With steroid therapy	102	15	14.7	16	4	25.0	1	0	0.0	15.2
Without steroid therapy	14,516	970	6.7	771	140	18.2	78	16	20.5	7.3
With severe obesity	146	24	16.4	20	6	30.0	0	0	-	17.1
Without severe obesity	14,472	961	6.7	767	138	18.0	79	16	20.3	7.3
With severe malnutrition	57	10	17.5	10	5	50.0	0	0	-	19.2
Without severe malnutrition	14,561	975	6.7	777	139	17.9	79	16	20.3	7.3
Not reported	114	8	7.0	12	3	25.0	3	1	33.3	
Rate adjusted for:										
Diabetes			6.8			18.3				
Steroid therapy			6.8			18.3				
Severe obesity			6.8			18.1				
Severe malnutrition			6.7			18.0				

*Incidence of infection by nutritional and metabolic factors adjusted to a uniform remote infection distribution.

Table B-20

Incidence of Wound Infection by Remote Infection and Duration of Preoperative Hospitalization, Combined Hospitals

Duration of preoperative hospitalization	Remote infection									Adjusted percent infected**
	None			One or more			Unknown			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	14,732	993	6.7	799	147	18.4	82	17	20.7	2.9 6.1 7.2 9.0 9.8 14.0
Outpatient	387	12	3.1	1	0	0.0	15	0	0.0	
Under 2 days	6,511	354	5.4	243	44	18.1	29	7	24.1	
2-6 days	4,534	310	6.8	265	38	14.3	21	6	28.6	
7-13 days	1,783	153	8.6	144	23	16.0	5	0	0.0	
14-20 days	670	57	8.5	73	25	34.2	3	0	0.0	
21+ days	703	95	13.5	63	15	23.8	7	4	57.1	
Unknown	144	12	8.3	10	2	20.0	2	0	0.0	
Adjusted rate*			6.7			17.2				

*Incidence of infection by remote infection adjusted to a uniform duration of preoperative hospitalization distribution.

**Incidence of infection by duration of preoperative hospitalization adjusted to a uniform remote infection distribution.

Table B-21

Incidence of Infection by Wound Closure and Classification of Operation, Combined Hospitals

	Classification of operation												Adjusted percent infected**
	Refined-clean			Other clean			Clean-contaminated			Contaminated and dirty			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Wound closure													
All wounds	6,656	222	3.3	5,034	372	7.4	2,589	280	10.8	1,262	277	21.9	
None or incomplete	0	0	-	199	8	4.0	91	15	16.5	111	38	34.2	11.9
Primary	6,656	222	3.3	4,608	337	7.3	2,441	256	10.5	1,066	211	19.8	10.0
Secondary	0	0	-	11	2	18.2	9	3	33.3	19	6	31.6	24.5
Skin graft	0	0	-	143	18	12.6	31	6	19.4	47	14	29.8	17.0
Other closure	0	0	-	21	6	28.6	4	0	0.0	11	6	54.5	23.9
Not reported	0	0	-	52	1	1.9	13	0	0.0	8	2	25.0	
Adjusted rate*			***			7.4			10.8			20.4	

*Adjusted rate: Incidence of infection by classification of operation adjusted to a uniform wound closure distribution.

**Incidence of infection by wound closure adjusted to a uniform classification of operation distribution.

***Refined-clean wounds all primarily closed.

Table B-22

Incidence of Infection by Wound Closure and Urgency of Operation, Combined Hospitals

	Urgency of operation												Adjusted percent infected**
	Elective			Urgent			Emergency			Urgency not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Wound closure													
All wounds	13,183	877	6.7	846	99	11.7	1,334	161	12.1	250	20	8.0	
None or incomplete	314	39	12.4	38	6	15.8	44	15	34.1	6	1	16.7	14.5
Primary	12,556	784	6.2	780	87	11.2	1,265	142	11.2	235	19	8.1	6.9
Secondary	31	9	29.0	2	0	0.0	5	2	40.0	1	0	0.0	28.4
Skin graft	191	33	17.3	18	5	27.8	10	0	0.0	2	0	0.0	16.4
Other closure	33	10	30.3	1	1	100.0	2	1	50.0	0	0	-	35.8
Not reported	58	2	3.4	7	0	0.0	8	1	12.5	6	0	0.0	
Adjusted rate*			6.6			11.7			11.8				

*Adjusted rate: Incidence of infection by urgency of operation adjusted to a uniform wound closure distribution.

**Incidence of infection by wound closure adjusted to a uniform urgency of operation distribution.

Table B-23
Incidence of Infection by Drain Site Provided and Classification of Operation, Combined Hospitals

Classification of operation	No drain site provided				Subcutaneous wound				Serous cavity wound				Remote			
	Total		Percent		Total		Percent		Total		Percent		Total		Percent	
	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected
All wounds	9,447	474	5.0		6,105	678	11.1		3,014	346	11.5	1,422	171	12.0	2,042	230
Refined-clean	6,656	222	3.3		4,023	315	7.8		2,227	176	7.9	763	56	7.3	1,216	109
Other clean	1,979	55	5.6		1,413	186	13.2		471	82	17.4	446	58	13.0	619	9.0
Clean-contaminated	1,161	94	8.1		631	172	27.3		300	86	28.7	201	56	27.9	192	50
Contaminated and dirty	628	103	16.4		38	5	13.2		2	16	12.5	1	1	8.3	15	2
Not reported	23	0	0.0													
Adjusted rate*	7.9				12.1				13.6				11.9			

Classification of operation	Drain site not reported				Adjusted			
	Total		Percent		wounds		percent	
	wounds	infected	wounds	infected	wounds	infected	wounds	infected
All wounds	61	5	8.2				**	
Refined-clean	0	0	0.0				6.6	
Other clean	32	2	6.2				10.7	
Clean-contaminated	15	0	0.0				21.0	
Contaminated and dirty	3	2	66.7					
Not reported	11	1	9.1					

*Adjusted: Incidence of infection by drain site provided adjusted to a uniform classification of operation distribution.

**Incidence of infection by classification of operation adjusted to a uniform drain site provided distribution.

***Refined-clean limited to no drain provided.

Table B-24
Incidence of Infection by Drain Site Provided and Duration of Operation, Combined Hospitals

Duration of operation	No drain site provided				Subcutaneous wound				Serous cavity wound				Remote			
	Total		Percent		Total		Percent		Total		Percent		Total		Percent	
	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected	wounds	infected
All wounds	1,461	28	1.9		6,105	678	11.1		3,014	346	11.5	1,422	171	12.0	2,042	230
Under 30 min.	1,061	28	2.6		4,023	315	7.8		2,227	176	7.9	763	56	7.3	1,216	109
30-59 min.	2,254	99	4.4		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
1-2 hrs.	3,578	162	4.5		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
2-3 hrs.	1,406	93	6.6		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
3-4 hrs.	251	19	7.6		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
4-5 hrs.	19	1	5.3		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
5-6 hrs.	19	1	5.3		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
6-7 hrs.	19	1	5.3		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
Not reported	148	7	4.7		1,406	93	6.6		471	82	17.4	446	58	13.0	619	9.0
Adjusted rate*	5.4				10.6				11.2				12.6			

Duration of operation	Drain site not reported				Adjusted			
	Total		Percent		wounds		percent	
	wounds	infected	wounds	infected	wounds	infected	wounds	infected
All wounds	61	5	8.2					
Under 30 min.	3	1	33.3				6.5	
30-59 min.	11	1	9.1				7.3	
1-2 hrs.	24	1	4.2				6.7	
2-3 hrs.	11	0	0.0				9.1	
3-4 hrs.	3	1	33.3				9.0	
4-5 hrs.	1	0	0.0				15.1	
5-6 hrs.	1	0	0.0				16.6	
6-7 hrs.	0	0	0.0					
Not reported	3	0	0.0					

*Incidence of infection by drain site provided adjusted to a uniform duration of operation distribution.

**Incidence of infection by duration of operation adjusted to a uniform drain site provided distribution.

Incidence of Infection by Drain Site Provided and Urgency of Operation, Combined Hospitals

*Incidence of infection by drain site provided adjusted to a uniform urgency of operation distribution.
**Incidence of infection by urgency of operation adjusted to a uniform drain site provided distribution.

Incidence of Infection by Duration of Operation and Classification of Operation, Combined Hospitals

*Incidence of infection by duration of operation adjusted to a uniform classification of operation distribution.

***Incidence of infection by classification of operation adjusted to a uniform duration of operation distribution.

Table B-27

Incidence of Infection by Wound Closure and Duration of Operation, Combined Hospitals

Duration of operation	Wound closure											
	None or partial			Primary			Secondary			Skin graft		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	402	61	15.2	14,836	1,032	7.0	39	11	28.2	221	38	17.2
Under 30 min.	52	10	19.2	1,250	32	2.6	6	2	33.3	21	2	9.5
30-59 min.	88	22	25.0	2,875	147	5.1	17	4	23.5	55	6	10.9
1-< 2 hrs.	134	8	6.0	5,421	339	6.3	6	2	33.3	68	6	8.8
2-< 3 hrs.	63	7	11.1	2,691	241	9.0	1	0	0.0	28	5	17.9
3-< 4 hrs.	29	8	27.6	1,235	112	9.1	6	2	33.3	13	4	30.8
4-< 5 hrs.	17	2	11.8	612	65	10.6	3	1	33.3	16	3	18.8
5-< 6 hrs.	9	1	11.1	319	45	14.1	0	0	-	8	6	75.0
6+ hrs.	8	3	37.5	256	42	16.4	0	0	-	3	2	66.7
Not reported	2	0	0.0	177	9	5.1	0	0	-	9	4	44.4
Adjusted rate*			14.6			7.0			24.0			15.7

Duration of operation	Wound closure						Adjusted percent infected**
	Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	36	12	33.3	79	3	3.8	
Under 30 min.	9	2	22.2	2	0	0.0	3.3
30-59 min.	4	2	50.0	16	0	0.0	5.8
1-< 2 hrs.	16	6	37.5	26	2	7.7	6.5
2-< 3 hrs.	5	0	0.0	18	0	0.0	9.1
3-< 4 hrs.	2	2	100.0	10	1	10.0	10.2
4-< 5 hrs.	0	0	-	3	0	0.0	10.8
5-< 6 hrs.	0	0	-	1	0	0.0	14.8
6+ hrs.	0	0	-	0	0	-	17.6
Not reported	0	0	-	3	0	0.0	
Adjusted rate*			34.0				

*Incidence of infection by wound closure adjusted to a uniform duration of operation distribution.

**Incidence of infection by duration of operation adjusted to a uniform wound closure distribution.

Table B-28

Incidence of Infection by Duration of Operation and Urgency of Operation, Combined Hospitals

Urgency of operation	Duration of operation											
	Under 30 minutes			30-59 minutes			1 and under 2 hours			2 and under 3 hours		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	1,340	48	3.6	3,055	181	5.9	5,671	363	6.4	2,806	253	9.0
Elective	1,248	40	3.2	2,543	134	5.3	4,697	244	5.2	2,372	202	8.5
Urgent	33	2	6.1	166	19	11.4	307	36	11.7	172	21	12.2
Emergency	49	5	10.2	314	26	8.3	571	76	13.3	222	26	11.7
Not reported	10	1	10.0	32	2	6.2	96	7	7.3	40	4	10.0
Adjusted rate*			4.0			5.9			6.3			9.0

Urgency of operation	Duration of operation											
	3 and under 4 hours			4 and under 5 hours			5 and under 6 hours			6 hours and over		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	1,295	129	10.0	651	71	10.9	337	52	15.4	267	47	17.6
Elective	1,095	105	9.6	546	57	10.4	288	43	14.9	232	43	18.5
Urgent	86	7	8.1	40	5	12.5	24	6	25.0	11	0	0.0
Emergency	89	15	16.9	51	7	13.7	19	3	15.8	13	2	15.4
Not reported	25	2	8.0	14	2	14.3	6	0	0.0	11	2	18.2
Adjusted rate*			10.2			10.8			15.5			17.2

Urgency of operation	Duration of operation			Adjusted percent infected**
	Total wounds	Infected wounds	Percent infected	
All wounds	191	13	6.8	
Elective	163	9	5.5	6.7
Urgent	7	3	42.9	11.1
Emergency	6	1	16.7	12.2
Not reported	15	0	0.0	

*Incidence of infection by duration of operation adjusted to a uniform urgency of operation distribution.

**Incidence of infection by urgency of operation adjusted to a uniform duration of operation distribution.

Table B-30

Incidence of Infection by Urgency of Operation and Classification of Operation, Combined Hospitals

Classification of operation	Urgency of operation								
	Elective			Urgent			Emergency		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	13,183	877	6.7	846	99	11.7	1,334	161	12.1
Refined-clean	6,656	222	3.3	0	0	-	0	0	-
Other clean	3,941	288	7.3	434	40	9.2	487	39	8.0
Clean-contaminated	1,953	219	11.2	238	17	7.1	355	40	11.3
Contaminated and dirty	585	145	24.8	169	41	24.3	484	82	16.9
Not reported	48	3	6.2	5	1	20.0	8	0	0.0
Adjusted rate*			10.9			10.7			10.2

Classification of operation	Urgency of operation			Adjusted percent infected**
	Urgency not reported			
	Total wounds	Infected wounds	Percent infected	
All wounds	250	20	8.0	
Refined-clean	0	0	-	***
Other clean	172	5	2.9	7.6
Clean-contaminated	43	4	9.3	10.8
Contaminated and dirty	24	9	37.5	23.5
Not reported	11	2	18.2	

*Incidence of infection by urgency of operation adjusted to a uniform classification of operation distribution.

**Incidence of infection by classification of operation adjusted to a uniform urgency of operation distribution.

***Refined-clean limited to elective wounds.

Table B-31

Incidence of Infection by Urgency of Operation and Age of Patient, Combined Hospitals

Age of patient	Urgency of operation								
	Elective			Urgent			Emergency		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All ages	13,183	877	6.7	846	99	11.7	1,334	161	12.1
Under 1 year	216	11	5.1	18	2	11.1	30	1	3.3
1-14 years	846	34	4.0	43	1	2.3	151	14	9.3
15-24 years	905	35	3.9	77	5	6.5	243	18	7.4
25-34 years	1,466	72	4.9	84	9	10.7	185	15	8.1
35-44 years	2,336	128	5.5	83	6	7.2	163	18	11.0
45-54 years	2,726	178	6.5	117	19	16.2	164	31	18.9
55-64 years	2,367	200	8.4	192	28	14.6	172	26	15.1
65-74 years	1,705	173	10.1	130	16	12.3	137	24	17.5
75+ years	568	43	7.6	102	13	12.7	84	14	16.7
Unknown	48	3	6.2	0	0	-	5	0	0.0
Adjusted rate*			6.6			11.3			13.5

Age of patient	Urgency of operation			Adjusted percent infected**
	Urgency not reported			
	Total wounds	Infected wounds	Percent infected	
All ages	250	20	8.0	
Under 1 year	7	0	0.0	5.3
1-14 years	22	2	9.1	4.4
15-24 years	20	1	5.0	4.3
25-34 years	32	2	6.2	5.5
35-44 years	37	3	8.1	6.1
45-54 years	32	1	3.1	8.1
55-64 years	43	7	16.3	9.3
65-74 years	42	3	7.1	10.9
75+ years	15	1	6.7	8.7
Unknown	0	0	-	

*Incidence of infection by urgency of operation adjusted to a uniform age distribution.

**Incidence of infection by age of patient adjusted to a uniform urgency of operation distribution.

Table B-32

Incidence of Infection by Urgency of Operation and Time Operation Began, Combined Hospitals

Time operation began (military time)	Urgency of operation					
	Effective			Urgent		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	13,183	877	6.7	846	99	11.7
0730-0929 hrs.	5,562	344	6.2	215	25	11.6
0930-1229 hrs.	4,127	282	6.8	204	30	14.7
1230-1529 hrs.	2,743	197	7.2	154	19	12.3
1530-2400 hrs.	393	29	7.4	207	19	9.2
0000-0729 hrs.	223	16	7.2	59	3	5.1
Not reported	135	9	6.7	7	3	42.9
Adjusted rate*			6.7			12.2
						11.1

Time operation began (military time)	Urgency of operation			Adjusted percent infected**
	Urgency not reported			
	Total wounds	Infected wounds	Percent infected	
All wounds	250	20	8.0	
0730-0929 hrs.	78	6	7.7	6.9
0930-1229 hrs.	72	5	6.9	7.6
1230-1529 hrs.	50	5	10.0	7.9
1530-2400 hrs.	28	4	14.3	8.0
0000-0729 hrs.	15	0	0.0	7.3
Not reported	7	0	0.0	

*Incidence of infection by urgency of operation adjusted to a uniform time operation began distribution.

**Incidence of infection by time operation began adjusted to a uniform urgency of operation distribution.

Table B-33

Incidence of Infection by Classification of Operation and Time Operation Began, Combined Hospitals

Time operation began (military time)	Classification of operation					
	Refined-clean			Other clean		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	6,656	222	3.3	5,034	372	7.4
0730-0929 hrs.	2,550	77	3.0	2,071	153	7.4
0930-1229 hrs.	2,237	79	3.5	1,379	100	7.3
1230-1529 hrs.	1,482	57	3.8	947	71	7.5
1530-2400 hrs.	193	3	1.6	426	34	8.0
0000-0729 hrs.	99	4	4.0	171	10	5.8
Not reported	95	2	2.1	40	4	10.0
Adjusted rate*			3.2			7.4
						10.8

Time operation began (military time)	Classification of operation					
	Clean-contaminated			Contaminated and dirty		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	2,589	280	10.8	1,262	277	21.9
0730-0929 hrs.	1,004	90	9.0	265	58	21.9
0930-1229 hrs.	652	83	12.7	254	69	27.2
1230-1529 hrs.	490	60	12.2	222	20	9.0
1530-2400 hrs.	307	34	11.1	346	68	19.7
0000-0729 hrs.	125	9	7.2	169	23	13.6
Not reported	11	4	36.4	6	2	33.3
Adjusted rate*			10.8			23.7
						0.0

Time operation began (military time)	Not reported		
	Total wounds	Infected wounds	Percent infected
All wounds	72	6	8.3
0730-0929 hrs.	31	4	12.9
0930-1229 hrs.	20	1	5.0
1230-1529 hrs.	11	0	0.0
1530-2400 hrs.	8	1	12.5
0000-0729 hrs.	0	0	-
Not reported	2	0	0.0

*Incidence of infection by classification of operation adjusted to a uniform time operation began distribution.

**Incidence of infection by time operation began adjusted to a uniform classification of operation distribution.

Table B-34

Incidence of Infection by Month of Operation,
Combined Hospitals

Month and Year of Operation	Total wounds	Infected wounds	Percent infected
All wounds	15,613	1,157	7.4
November, 1959	63	2	3.2
December, 1959	78	3	3.8
January, 1960	457	31	6.8
February, 1960	630	48	7.6
March, 1960	717	66	9.2
April, 1960	710	63	8.9
May, 1960	764	59	7.7
June, 1960	815	68	8.3
July, 1960	463	38	8.2
August, 1960	671	59	8.8
September, 1960	772	76	9.8
October, 1960	758	61	8.0
November, 1960	677	55	8.1
December, 1960	656	53	8.1
January, 1961	617	43	7.0
February, 1961	573	52	9.1
March, 1961	679	43	6.3
April, 1961	538	25	4.6
May, 1961	683	62	9.1
June, 1961	603	56	9.3
July, 1961	349	25	7.2
August, 1961	596	31	5.2
September, 1961	499	17	3.4
October, 1961	671	33	4.9
November, 1961	637	39	6.1
December, 1961	530	31	5.8
January, 1962	407	18	4.4

Table B-35

Incidence of Infection by Month and Year
of Operation and Treatment Status,
Combined Hospitals

Month and year of operation	Ultraviolet			Control			Adjusted percent infected**
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	7,594	559	7.4	8,019	598	7.5	
November, 1959	39	1	2.6	24	1	4.2	3.4
December, 1959	38	0	0.0	40	3	7.5	3.9
January, 1960	209	13	6.2	248	18	7.3	6.8
February, 1960	324	31	9.6	306	17	5.6	7.5
March, 1960	364	37	10.2	353	29	8.2	9.2
April, 1960	354	34	9.6	356	29	8.1	8.8
May, 1960	351	24	6.8	413	35	8.5	7.7
June, 1960	423	40	9.5	392	28	7.1	8.3
July, 1960	227	14	6.2	236	24	10.2	8.3
August, 1960	340	25	7.4	331	34	10.3	8.9
September, 1960	362	25	6.9	410	51	12.4	9.7
October, 1960	383	26	6.8	375	35	9.3	8.1
November, 1960	334	23	6.9	343	32	9.3	8.1
December, 1960	334	27	8.1	322	26	8.1	8.1
January, 1961	285	24	8.4	332	19	5.7	7.0
February, 1961	282	27	9.6	291	25	8.6	9.1
March, 1961	327	25	7.6	352	18	5.1	6.3
April, 1961	240	11	4.6	298	14	4.7	4.7
May, 1961	337	34	10.1	346	28	8.1	9.1
June, 1961	297	26	8.8	306	30	9.8	9.3
July, 1961	170	14	8.2	179	11	6.1	7.1
August, 1961	271	12	4.4	325	19	5.8	5.1
September, 1961	253	4	1.6	246	13	5.3	3.5
October, 1961	336	16	4.8	335	17	5.1	5.0
November, 1961	261	20	7.7	376	19	5.1	6.4
December, 1961	265	16	6.0	265	15	5.7	5.8
January, 1962	188	10	5.3	219	8	3.7	4.5
Adjusted rate*			7.3			7.5	

*Incidence of infection by treatment status adjusted to a uniform month and year of operation distribution.

**Incidence of infection by month and year of operation adjusted to a uniform treatment status distribution.

Table B-36

Incidence of Infection by Month of Operation and Classification of Operation, Combined Hospitals

Month and year of operation	Refined-clean			Other clean			Clean-contaminated		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	6,656	222	3.3	5,034	372	7.4	2,589	280	10.8
November, 1959	31	0	0.0	26	1	3.8	5	1	20.0
December, 1959	38	0	0.0	26	0	0.0	10	2	20.0
January, 1960	194	5	2.6	156	9	5.8	68	5	7.4
February, 1960	261	4	1.5	210	19	9.0	108	15	13.9
March, 1960	293	7	2.4	237	27	11.4	130	17	13.1
April, 1960	302	11	3.6	233	27	11.6	108	14	13.0
May, 1960	347	13	3.7	249	14	5.6	113	15	13.3
June, 1960	405	17	4.2	245	20	8.2	109	14	12.8
July, 1960	239	12	5.0	112	11	9.8	72	7	9.7
August, 1960	266	15	5.6	209	15	7.2	128	11	8.6
September, 1960	321	22	6.9	251	20	8.0	132	8	6.1
October, 1960	321	13	4.0	253	24	9.5	114	9	7.9
November, 1960	314	10	3.2	205	15	7.3	105	16	15.2
December, 1960	273	6	2.2	208	19	9.1	114	17	14.9
January, 1961	276	9	3.3	180	9	5.0	94	6	6.4
February, 1961	241	9	3.7	173	19	11.0	114	9	7.9
March, 1961	298	11	3.7	212	11	5.2	123	12	9.8
April, 1961	236	3	1.3	162	7	4.3	105	10	9.5
May, 1961	257	6	2.3	238	22	9.2	132	22	16.7
June, 1961	237	7	3.0	206	24	11.7	106	11	10.4
July, 1961	133	4	3.0	103	7	6.8	80	10	12.5
August, 1961	239	7	2.9	220	5	2.3	81	14	17.3
September, 1961	196	4	2.0	169	5	3.0	82	5	6.1
October, 1961	285	7	2.5	228	15	6.6	104	6	5.8
November, 1961	267	7	2.6	217	13	6.0	93	11	11.8
December, 1961	216	8	3.7	165	9	5.5	96	8	8.3
January, 1962	170	5	2.9	141	5	3.5	63	5	7.9
Adjusted rate*			3.3			7.4			10.9

Month and year of operation	Contaminated			Dirty			Not reported			Adjusted percent infected**
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	681	111	16.3	581	166	28.6	72	6	8.3	
November, 1959	1	0	0.0	0	0	-	0	0	-	4.6
December, 1959	3	0	0.0	1	1	100.0	0	0	-	7.1
January, 1960	20	6	30.0	18	6	33.3	1	0	0.0	6.8
February, 1960	24	1	4.2	25	9	36.0	2	0	0.0	7.4
March, 1960	29	7	24.1	26	8	30.8	2	0	0.0	9.1
April, 1960	43	9	20.9	22	2	9.1	2	0	0.0	6.7
May, 1960	26	8	30.8	28	9	32.1	1	0	0.0	8.2
June, 1960	23	6	26.1	31	11	35.5	2	0	0.0	9.1
July, 1960	14	1	7.1	25	6	24.0	1	1	100.0	8.1
August, 1960	30	7	23.3	34	11	32.4	4	0	0.0	8.4
September, 1960	34	7	20.6	33	19	57.6	1	0	0.0	9.6
October, 1960	32	5	15.6	36	10	27.8	2	0	0.0	7.8
November, 1960	24	5	20.8	28	9	32.1	1	0	0.0	8.4
December, 1960	33	6	18.2	26	5	19.2	2	0	0.0	7.9
January, 1961	24	4	16.7	42	15	35.7	1	0	0.0	6.2
February, 1961	21	5	23.8	23	10	43.5	1	0	0.0	9.1
March, 1961	22	4	18.2	18	4	22.2	6	1	16.7	6.5
April, 1961	14	2	14.3	18	3	16.7	3	0	0.0	4.8
May, 1961	29	7	24.1	21	4	19.0	6	1	16.7	8.5
June, 1961	30	6	20.0	16	8	50.0	8	0	0.0	9.6
July, 1961	17	2	11.8	15	2	13.3	1	0	0.0	6.6
August, 1961	39	4	10.3	12	0	0.0	5	1	20.0	5.3
September, 1961	34	0	0.0	15	3	20.0	3	0	0.0	3.6
October, 1961	32	2	6.2	19	2	10.5	3	1	33.3	4.8
November, 1961	38	3	7.9	14	4	28.6	8	1	12.5	6.4
December, 1961	26	2	7.7	24	4	16.7	3	0	0.0	5.7
January, 1962	19	2	10.5	11	1	9.1	3	0	0.0	4.5
Adjusted rate*			17.1			27.3				

* Incidence of infection by classification of operation adjusted to a uniform month and year of operation distribution.

** Incidence of infection by month and year of operation adjusted to a uniform classification of operation distribution.

Table B-37
Incidence of Infection by Month and Year of Operation and Hospital

Month and year of Operation	Hospital 1			Hospital 2			Hospital 3		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	2,338	112	4.8	2,965	209	7.0	2,573	302	11.7
November, 1959	63	2	3.2	0	0	-	0	0	-
December, 1959	75	2	2.7	0	0	-	0	0	-
January, 1960	74	4	5.4	91	3	3.3	54	5	9.3
February, 1960	70	2	2.9	111	10	9.0	107	18	16.8
March, 1960	76	7	9.2	131	4	3.1	133	15	11.3
April, 1960	60	1	1.7	170	5	2.9	126	21	16.7
May, 1960	95	4	4.2	156	8	5.1	121	22	18.2
June, 1960	99	2	2.0	164	8	4.9	134	26	19.4
July, 1960	73	3	4.1	147	10	6.8	128	22	17.2
August, 1960	100	3	3.0	138	16	11.6	141	20	14.2
September, 1960	89	5	5.6	171	21	12.3	138	17	12.3
October, 1960	98	7	7.1	150	9	6.0	156	15	9.6
November, 1960	93	3	3.2	147	17	11.6	166	17	10.2
December, 1960	87	3	3.4	118	11	9.3	157	10	6.4
January, 1961	88	4	4.5	177	21	11.9	2	0	0.0
February, 1961	77	4	5.2	166	19	11.4	0	0	-
March, 1961	108	3	2.8	166	14	8.4	0	0	-
April, 1961	81	4	4.9	65	5	7.7	0	0	-
May, 1961	97	5	5.2	0	0	-	163	35	21.5
June, 1961	93	6	6.5	20	0	0.0	152	26	17.1
July, 1961	82	5	6.1	87	5	5.7	81	12	14.8
August, 1961	104	9	8.7	83	1	1.2	143	7	4.9
September, 1961	85	4	4.7	63	1	1.6	112	4	3.6
October, 1961	92	4	4.3	127	3	2.4	80	4	5.0
November, 1961	92	2	2.2	106	6	5.7	107	5	4.7
December, 1961	85	6	7.1	89	5	5.6	79	0	0.0
January, 1962	102	8	7.8	122	7	5.7	93	1	1.1
Adjusted rate*			4.7			6.1			9.7

Month and year of operation	Hospital 4			Hospital 5		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	2,567	78	3.0	5,170	456	8.8
November, 1959	0	0	-	0	0	-
December, 1959	3	1	33.3	0	0	-
January, 1960	97	6	6.2	141	13	9.2
February, 1960	105	2	1.9	237	16	6.8
March, 1960	105	2	1.9	272	38	14.0
April, 1960	120	6	5.0	234	30	12.8
May, 1960	121	6	5.0	271	19	7.0
June, 1960	114	1	0.9	304	31	10.2
July, 1960	115	3	2.6	0	0	-
August, 1960	83	2	2.4	209	18	8.6
September, 1960	94	3	3.2	280	30	10.7
October, 1960	107	2	1.9	247	28	11.3
November, 1960	112	5	4.5	159	13	8.2
December, 1960	88	2	2.3	206	27	13.1
January, 1961	106	4	3.8	244	14	5.7
February, 1961	95	4	4.2	235	25	10.6
March, 1961	107	0	0.0	298	26	8.7
April, 1961	99	2	2.0	293	14	4.8
May, 1961	123	2	1.6	300	20	6.7
June, 1961	121	5	4.1	217	19	8.8
July, 1961	99	3	3.0	0	0	-
August, 1961	84	4	4.8	182	10	5.5
September, 1961	92	3	3.3	147	5	3.4
October, 1961	95	1	1.1	277	21	7.6
November, 1961	96	3	3.1	236	23	9.7
December, 1961	96	4	4.2	181	16	8.8
January, 1962	90	2	2.2	0	0	-
Adjusted rate*			3.1			8.1

*Incidence of infection by treatment status adjusted to a uniform month and year of operation distribution.

Table B-38

Incidence of Infection by Prophylactic Antibiotics Used and Classification of Operation, Combined Hospitals

Classification of operation	Prophylactic antibiotics administered											
	None			One or more			Penicillin only			Tetracycline only		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	10,502	465	4.4	4,642	665	14.3	375	21	5.6	517	85	16.4
Refined-clean	5,389	126	2.3	875	82	9.4	109	4	3.7	166	23	13.9
Other clean	3,451	187	5.4	1,538	180	11.7	111	7	6.3	161	24	14.9
Clean-contaminated	1,138	77	6.8	1,437	200	13.9	85	4	4.7	121	19	15.7
Contaminated	293	31	10.6	377	77	20.4	34	4	11.8	35	6	17.1
Dirty	198	44	22.2	379	120	31.7	34	2	5.9	30	13	43.3
Not reported	33	0	0.0	36	6	16.7	2	0	0.0	4	0	0.0
Adjusted rate*			5.2			12.2			5.1			15.8

Classification of operation	Prophylactic antibiotics administered											
	Chloramphenicol only			Penicillin and streptomycin			Penicillin and tetracycline			Penicillin and chloramphenicol		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	620	101	16.3	1,306	170	13.0	556	37	6.7	160	23	14.4
Refined-clean	119	14	11.8	200	19	9.5	70	2	2.9	22	3	13.6
Other clean	197	21	10.7	563	51	9.1	97	6	6.2	50	8	16.0
Clean-contaminated	224	38	17.0	389	53	13.6	194	12	6.2	47	4	8.5
Contaminated	36	9	25.0	84	17	20.2	89	5	5.6	25	6	24.0
Dirty	40	18	45.0	55	27	49.1	106	12	11.3	15	2	13.3
Not reported	4	1	25.0	15	3	20.0	0	0	-	1	0	0.0
Adjusted rate*			14.1			12.0			5.0			14.0

Classification of operation	Prophylactic antibiotics administered									Adjusted percent infected**
	Penicillin streptomycin and chloramphenicol			Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	249	69	27.7	859	159	18.5	469	27	5.8	4.4
Refined-clean	37	7	18.9	152	10	6.6	392	14	3.6	7.3
Other clean	98	19	19.4	261	44	16.9	45	5	11.1	8.9
Clean-contaminated	55	11	20.0	322	59	18.3	14	3	21.4	14.2
Contaminated	23	14	60.9	51	16	31.4	11	3	27.3	27.0
Dirty	34	17	50.0	65	29	44.6	4	2	50.0	
Not reported	2	1	50.0	8	1	12.5	3	0	0.0	
Adjusted rate*			22.2			14.4				

*Incidence of infection by prophylactic antibiotics administered adjusted to a uniform classification of operation distribution.

**Incidence of infection by classification of operation adjusted to a uniform prophylactic antibiotics administered distribution.

Table B-39

Incidence of Infection by Prophylactic Antibiotic Used and Hospital

Hospital	Prophylactic antibiotics administered											
	None			One or more			Penicillin only			Tetracycline only		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	10,502	465	4.4	4,642	665	14.3	375	21	5.6	517	85	16.4
Hospital 1	1,664	42	2.5	665	69	10.4	13	0	0.0	128	14	10.9
Hospital 2	2,418	84	3.5	429	118	27.5	19	2	10.5	130	38	29.2
Hospital 3	1,577	143	9.1	950	153	16.1	67	7	10.4	144	17	11.8
Hospital 4	1,651	25	1.5	911	53	5.8	232	7	3.0	51	5	9.8
Hospital 5	3,192	171	5.4	1,687	272	16.1	44	5	11.4	64	11	17.2
Adjusted rate*			4.6			15.7			8.0			16.4

Hospital	Prophylactic antibiotics administered											
	Chloramphenicol only			Penicillin and streptomycin			Penicillin and tetracycline			Penicillin and chloramphenicol		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	620	101	16.3	1,306	170	13.0	556	37	6.7	160	23	14.4
Hospital 1	156	15	9.6	213	18	8.5	2	0	0.0	0	0	-
Hospital 2	57	23	40.4	164	35	21.3	2	0	0.0	2	0	0.0
Hospital 3	177	36	20.3	198	19	9.6	9	1	11.1	13	2	15.4
Hospital 4	7	0	0.0	2	0	0.0	541	35	6.5	34	2	5.9
Hospital 5	223	27	12.1	729	98	13.4	2	1	50.0	111	19	17.1
Adjusted rate*			16.5			11.3			19.5			9.2

Hospital	Prophylactic antibiotics administered									Adjusted percent infected**
	Penicillin, streptomycin, and chloramphenicol			Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Combined hospitals	249	69	27.7	859	159	18.5	469	27	5.8	4.5
Hospital 1	10	3	30.0	143	19	13.3	9	1	11.1	9.9
Hospital 2	9	4	44.4	46	16	34.8	118	7	5.9	10.8
Hospital 3	25	7	28.0	317	64	20.2	46	6	13.0	2.3
Hospital 4	0	0	-	44	4	9.1	5	0	0.0	8.8
Hospital 5	205	55	26.8	309	56	18.1	291	13	4.5	
Adjusted rate*			26.4			19.4				

*Incidence of infection by prophylactic antibiotic used adjusted to a uniform hospital distribution.

Table B-40

Incidence of Infection by Prophylactic Antibiotic Used and Duration of Operation, Combined Hospitals

Duration of operation	Prophylactic antibiotic administered											
	None			One or more			Penicillin only			Tetracycline only		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	10,502	465	4.4	4,642	665	14.3	375	21	5.6	517	85	16.4
Under 30 min.	984	23	2.3	130	18	13.8	27	3	11.1	17	3	17.6
30-59 min.	2,431	93	3.8	474	79	16.7	57	3	5.3	67	15	22.4
1 < 2 hrs.	4,144	149	3.6	1,482	209	14.1	128	2	1.6	184	29	15.8
2 < 3 hrs.	1,691	105	6.2	1,097	145	13.2	76	3	3.9	111	13	11.7
3 < 4 hrs.	632	47	7.4	657	81	12.3	46	3	6.5	64	14	21.9
4 < 5 hrs.	274	23	8.4	370	47	12.7	17	2	11.8	34	5	14.7
5 < 6 hrs.	125	10	8.0	210	42	20.0	13	2	15.4	17	4	23.5
6+ hrs.	74	8	10.8	190	38	20.0	10	2	20.0	19	1	5.3
Not reported	147	7	4.8	32	6	18.8	1	1	100.0	4	1	25.0
Adjusted rate*			4.4			13.0			4.9			15.4

Duration of operation	Prophylactic antibiotic administered											
	Chloramphenicol only			Penicillin and streptomycin			Penicillin and tetracycline			Penicillin and chloramphenicol		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	620	101	16.3	1,306	170	13.0	556	37	6.7	160	23	14.4
Under 30 min.	10	2	20.0	24	2	8.3	23	2	8.7	5	0	0.0
30-59 min.	49	7	14.3	117	21	17.9	77	8	10.4	18	3	16.7
1 < 2 hrs.	227	29	12.8	420	64	15.2	170	12	7.1	37	5	13.5
2 < 3 hrs.	156	33	21.2	338	38	11.2	117	8	6.8	37	7	18.9
3 < 4 hrs.	72	12	16.7	196	16	8.2	66	3	4.5	27	4	14.8
4 < 5 hrs.	40	5	12.5	104	11	10.6	53	2	3.8	18	1	5.6
5 < 6 hrs.	28	4	14.3	63	11	17.5	22	2	9.1	7	0	0.0
6+ hrs.	30	7	23.3	37	7	18.9	26	0	0.0	9	1	11.1
Not reported	8	2	25.0	7	0	0.0	2	0	0.0	2	2	100.0
Adjusted rate*			14.5			12.2			6.7			12.0

Duration of operation	Prophylactic antibiotic administered									Adjusted percent infected**
	Penicillin, streptomycin, and chloramphenicol			Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	249	69	27.7	859	159	18.5	469	27	5.8	
Under 30 min.	2	2	100.0	22	4	18.2	226	7	3.1	7.0
30-59 min.	15	8	53.3	74	14	18.9	150	9	6.0	8.2
1 < 2 hrs.	64	17	26.6	252	51	20.2	45	5	11.1	6.9
2 < 3 hrs.	58	12	20.7	204	31	15.2	18	3	16.7	8.3
3 < 4 hrs.	50	11	22.0	136	18	13.2	6	1	16.7	8.9
4 < 5 hrs.	22	8	36.4	82	13	15.9	7	1	14.3	9.7
5 < 6 hrs.	21	6	28.6	39	13	33.3	2	0	0.0	11.5
6+ hrs.	16	5	31.2	43	15	34.9	3	1	33.3	13.4
Not reported	1	0	0.0	7	0	0.0	12	0	0.0	
Adjusted rate*			34.7			16.6				

*Incidence of infection by prophylactic antibiotics used adjusted to a uniform duration of operation distribution.

**Incidence of infection by duration of operation adjusted to a uniform prophylactic antibiotics used distribution.

Table B-41

Incidence of Infection by Prophylactic Antibiotics Used and Urgency of Operation, Combined Hospitals

Urgency of operation	Prophylactic antibiotics administered											
	None			One or more			Penicillin only			Tetracycline only		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	10,502	465	4.4	4,642	665	14.3	375	21	5.6	517	85	16.4
Elective	9,317	396	4.3	3,424	458	13.4	274	17	6.2	424	73	17.2
Urgent	403	24	6.0	437	74	16.9	21	2	9.5	22	3	13.6
Emergency	629	38	6.0	690	121	17.5	74	2	2.7	58	8	13.8
Not reported	153	7	4.6	91	12	13.2	6	0	0.0	13	1	7.7
Adjusted rate*			4.5			13.9			6.1			16.7

Urgency of operation	Prophylactic antibiotics administered											
	Chloramphenicol only			Penicillin & streptomycin			Penicillin & tetracycline			Penicillin & chloramphenicol		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	620	101	16.3	1,306	170	13.0	556	37	6.7	160	23	14.4
Elective	484	71	14.7	1,029	117	11.4	298	20	6.7	98	12	12.2
Urgent	59	10	16.9	132	24	18.2	54	2	3.7	34	7	20.6
Emergency	64	17	26.6	124	27	21.8	190	15	7.9	25	4	16.0
Not reported	13	3	23.1	21	2	9.5	14	0	0.0	3	0	0.0
Adjusted rate*			15.9			12.7			6.6			13.0

Urgency of operation	Prophylactic antibiotics administered									Adjusted percent infected**
	Penicillin, streptomycin and chloramphenicol			Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	249	69	27.7	859	159	18.5	469	27	5.8	7.0 9.1 10.3
Elective	154	38	24.7	663	110	16.6	442	23	5.2	
Urgent	44	10	22.7	71	16	22.5	6	1	16.7	
Emergency	51	21	41.2	104	27	26.0	15	2	13.3	
Not reported	0	0	-	21	6	28.6	6	1	16.7	
Adjusted rate*			26.0			17.7				

*Incidence of infection by prophylactic antibiotics used adjusted to a uniform urgency of operation distribution.

**Incidence of infection by urgency of operation adjusted to a uniform prophylactic antibiotics used distribution.

Table B-42

Incidence of Infection by Prophylactic Antibiotics Used and Preoperative Hospital Stay, Combined Hospitals

Preoperative hospital stay	Prophylactic antibiotics administered											
	None			One or more			Penicillin only			Tetracycline only		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	10,502	465	4.4	4,642	665	14.3	375	21	5.6	517	85	16.4
Under 2 days	5,364	216	4.0	1,399	184	13.2	135	7	5.2	175	22	12.6
2-6 days	3,054	138	4.5	1,736	209	12.0	112	4	3.6	186	30	16.1
7-13 days	1,134	51	4.5	793	124	15.6	56	5	8.9	82	15	18.3
14-20 days	424	23	5.4	321	59	18.4	31	2	6.5	33	11	33.3
21+ days	434	33	7.6	334	80	24.0	39	3	7.7	32	6	18.8
Not reported	92	4	4.3	59	9	15.3	2	0	0.0	9	1	11.1
Adjusted rate*			4.5			13.9			5.4			15.7

Preoperative hospital stay	Prophylactic antibiotics administered											
	Chloramphenicol only			Penicillin & streptomycin			Penicillin & tetracycline			Penicillin & chloramphenicol		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	620	101	16.3	1,306	170	13.0	556	37	6.7	160	23	14.4
Under 2 days	188	29	15.4	362	58	16.0	238	16	6.7	30	4	13.3
2-6 days	245	42	17.1	576	53	9.2	107	6	5.6	52	5	9.6
7-13 days	112	11	9.8	233	35	15.0	81	2	2.5	40	9	22.5
14-20 days	34	7	20.6	60	6	10.0	51	4	7.8	16	2	12.5
21+ days	32	11	34.4	56	16	28.6	76	9	11.8	22	3	13.6
Not reported	9	1	11.1	19	2	10.5	3	0	0.0	0	0	-
Adjusted rate*			16.4			14.1			6.1			13.3

Preoperative hospital stay	Prophylactic antibiotics administered									Adjusted percent infected**
	Penicillin, streptomycin and chloramphenicol			Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	249	69	27.7	859	159	18.5	469	27	5.8	
Under 2 days	51	12	23.5	220	36	16.4	423	17	4.0	7.0
2-6 days	98	17	17.3	360	52	14.4	30	7	23.3	6.7
7-13 days	51	18	35.3	138	29	21.0	5	1	20.0	7.8
14-20 days	30	13	43.3	66	14	21.2	1	0	0.0	9.1
21+ days	15	8	53.3	62	24	38.7	5	1	20.0	13.6
Not reported	4	1	25.0	13	4	30.8	5	1	20.0	
Adjusted rate*			25.5			17.7				

*Incidence of infection by prophylactic antibiotics used adjusted to a uniform preoperative hospital stay distribution.

**Incidence of infection by preoperative hospital stay adjusted to a uniform prophylactic antibiotics used distribution.

Table B-43

Incidence of Infection by Prophylactic Antibiotics Used and Nutritional and Metabolic Patient Factors, Combined Hospitals

Nutritional and metabolic patient factors	Prophylactic antibiotics administered								
	None			One or more			Penicillin only		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	10,502	465	4.4	4,642	665	14.3	375	21	5.6
With diabetes	198	12	6.1	156	23	14.7	20	1	5.0
Without diabetes	10,244	449	4.4	4,420	634	14.3	349	20	5.7
With steroid therapy	63	3	4.8	56	16	28.6	1	0	0.0
Without steroid therapy	10,379	458	4.4	4,520	641	14.2	368	21	5.7
With severe obesity	99	14	14.1	66	16	24.2	10	3	30.0
Without severe obesity	10,343	447	4.3	4,510	641	14.2	359	18	5.0
With severe malnutrition	25	3	12.0	41	12	29.3	1	0	0.0
Without severe malnutrition	10,417	458	4.4	4,535	645	14.2	368	21	5.7
Not reported	60	4	6.7	66	8	12.1	6	0	0.0
Rate adjusted for:									
Diabetes			4.4			14.3			5.7
Steroid therapy			4.4			14.3			5.7
Severe obesity			4.4			14.3			5.3
Severe malnutrition			4.4			14.3			5.7

Nutritional and metabolic patient factors	Prophylactic antibiotics administered								
	Tetracycline only			Chloramphenicol only			Penicillin and streptomycin		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	517	85	16.4	620	101	16.3	1,306	170	13.0
With diabetes	22	4	18.2	18	3	16.7	18	4	22.2
Without diabetes	484	80	16.5	593	97	16.4	1,272	163	12.8
With steroid therapy	6	1	16.7	11	2	18.2	11	1	9.1
Without steroid therapy	500	83	16.6	600	98	16.3	1,279	166	13.0
With severe obesity	15	3	20.0	7	2	28.6	12	4	33.3
Without severe obesity	491	81	16.5	604	98	16.2	1,278	163	12.8
With severe malnutrition	4	1	25.0	7	2	28.6	8	2	25.0
Without severe malnutrition	502	83	16.5	604	98	16.2	1,282	165	12.9
Not reported	11	1	9.1	9	1	11.1	16	3	18.8
Rate adjusted for:									
Diabetes			16.5			16.4			13.0
Steroid therapy			16.6			16.3			13.0
Severe obesity			16.5			16.3			13.0
Severe malnutrition			16.5			16.3			13.0

Table B-43 (continued)

Incidence of Infection by Prophylactic Antibiotics Used and Nutritional and Metabolic Patient Factors, Combined Hospitals

Nutritional and metabolic patient factors	Prophylactic antibiotics administered								
	Penicillin and tetracycline			Penicillin and chloramphenicol			Penicillin, streptomycin and chloramphenicol		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	556	37	6.7	160	23	14.4	249	69	27.7
With diabetes	29	2	6.9	7	1	14.3	13	1	7.7
Without diabetes	524	35	6.7	151	22	14.6	235	68	28.9
With steroid therapy	1	0	0.0	2	0	0.0	6	2	33.3
Without steroid therapy	552	37	6.7	156	23	14.7	242	67	27.7
With severe obesity	4	0	0.0	2	0	0.0	0	0	-
Without severe obesity	549	37	6.7	156	23	14.7	248	69	27.8
With severe malnutrition	5	1	20.0	2	0	0.0	1	0	0.0
Without severe malnutrition	548	36	6.6	156	23	14.7	247	69	27.9
Not reported	3	0	0.0	2	0	0.0	1	0	0.0
Rate adjusted for:									
Diabetes			6.7			14.6			28.4
Steroid therapy			6.6			14.6			27.7
Severe obesity			6.6			14.5			27.5
Severe malnutrition			6.7			14.6			27.8

Nutritional and metabolic patient factors	Prophylactic antibiotics administered						Adjusted percent infected*
	Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	859	159	18.5	469	27	5.8	
With diabetes	29	7	24.1	2	2	100.0	9.5
Without diabetes	812	149	18.3	464	25	5.4	7.4
With steroid therapy	18	10	55.6	0	0	-	9.1
Without steroid therapy	823	146	17.7	466	27	5.8	7.4
With severe obesity	16	4	25.0	1	0	0.0	16.7
Without severe obesity	825	152	18.4	465	27	5.8	7.3
With severe malnutrition	13	6	46.2	1	0	0.0	15.9
Without severe malnutrition	828	150	18.1	465	27	5.8	7.4
Not reported	18	3	16.7	3	0	0.0	
Rate adjusted for:							
Diabetes			18.4				
Steroid therapy			18.0				
Severe obesity			18.5				
Severe malnutrition			18.2				

*Incidence of infection for specific nutritional or metabolic patient factor categories adjusted to a uniform prophylactic-antibiotics-used distribution.

Table B-44

Incidence of Infection by Duration of Preoperative Hospitalization and Classification of Operation

Classification of operation	Duration of preoperative hospitalization								
	Outpatient			Under 2 days			2-6 days		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	403	12	3.0	6,783	405	6.0	4,820	354	7.3
Refined-clean	366	10	2.7	3,101	92	3.0	1,955	64	3.3
Other clean	25	0	0.0	2,246	130	5.8	1,682	139	8.3
Clean-contaminated	3	0	0.0	791	79	10.0	915	93	10.2
Contaminated and dirty	9	2	22.2	612	103	16.8	255	57	22.4
Not reported	0	0	-	33	1	3.0	13	1	7.7
Adjusted rate*			3.0			6.2			7.6

Classification of operation	Duration of preoperative hospitalization								
	14-20 days			21 days and over			Not reported		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	746	82	11.0	773	114	14.7	156	14	9.0
Refined-clean	255	15	5.9	237	13	5.5	49	0	0.0
Other clean	202	19	9.4	188	24	12.8	47	4	8.5
Clean-contaminated	191	19	9.9	213	30	14.1	42	7	16.7
Contaminated and dirty	89	29	32.6	129	44	34.1	18	3	16.7
Not reported	9	0	0.0	6	3	50.0	0	0	-
Adjusted rate*			9.9			11.6			

*Incidence of infection by duration of preoperative hospitalization adjusted to a uniform classification of operation distribution.

**Incidence of infection by classification of operation adjusted to a uniform duration of preoperative hospitalization distribution.

Table B-45

Incidence of Infection by Nutritional and Metabolic Patient Factors and Hospital

Patient factors predisposed for infection	Hospital 1			Hospital 2			Hospital 3		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
All wounds	2,338	112	4.8	2,965	209	7.0	2,573	302	11.7
With diabetes	53	8	15.1	53	3	5.7	23	3	13.0
Without diabetes	2,266	101	4.5	2,910	205	7.0	2,516	297	11.8
With steroid therapy	15	3	20.0	17	1	5.9	30	9	30.0
Without steroid therapy	2,304	106	4.6	2,946	207	7.0	2,509	291	11.6
With severe obesity	25	3	12.0	27	3	11.1	81	20	24.7
Without severe obesity	2,294	106	4.6	2,936	205	7.0	2,458	280	11.4
With severe malnutrition	17	1	5.9	5	0	0.0	35	13	37.1
Without severe malnutrition	2,302	108	4.7	2,958	208	7.0	2,504	287	11.5
Not reported	19	3	15.8	2	1	50.0	34	2	5.9

Rate adjusted for:									
Diabetes			4.7			7.0			11.8
Steroid therapy			4.7			7.0			11.7
Severe obesity			4.7			7.0			11.5
Severe malnutrition			4.7			7.0			11.6

Patient factors predisposed for infection	Hospital 4			Hospital 5			Adjusted percent infected*
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
All wounds	2,567	78	3.0	5,170	456	8.8	
With diabetes	125	6	4.8	102	17	16.7	11.8
Without diabetes	2,412	71	2.9	5,024	434	8.6	7.3
With steroid therapy	2	0	0.0	55	6	10.9	12.7
Without steroid therapy	2,535	77	3.0	5,071	445	8.8	7.3
With severe obesity	20	0	0.0	13	4	30.8	18.2
Without severe obesity	2,517	77	3.1	5,113	447	8.7	7.3
With severe malnutrition	7	1	14.3	3	0	0.0	9.3
Without severe malnutrition	2,530	76	3.0	5,123	451	8.8	7.3
Not reported	30	1	3.3	44	5	11.4	

Rate adjusted for:							
Diabetes			2.9			8.8	
Steroid therapy			3.0			8.8	
Severe obesity			3.1			8.9	
Severe malnutrition			3.0			8.8	

*Incidence of infection by hospital adjusted to a uniform nutritional and metabolic patient factors.

Table B-46

Incidence of Infection by Remote Infections and Hospital

Hospital	No remote infection			One or more remote infections			Adjusted percent infected**
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Combined hospitals	14,732	993	6.7	799	147	18.4	
Hospital 1	2,163	85	3.9	145	16	11.0	4.3
Hospital 2	2,878	196	6.8	79	11	13.9	7.2
Hospital 3	2,306	262	11.4	242	40	16.5	11.7
Hospital 4	2,562	76	3.0	2	1	50.0	5.4
Hospital 5	4,823	374	7.8	331	79	23.9	8.6
Adjusted rate*			6.8			23.1	

* Incidence of infection by remote infection adjusted to a uniform hospital distribution.

** Incidence of infection by hospital adjusted to a uniform remote infection distribution.

Table B-47

Incidence of Infection by Wound Closure and Hospital

Hospital	Wound closure											
	None or partial			Primary			Secondary			Skin graft		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	402	61	15.2	14,836	1,032	7.0	39	11	28.2	221	38	17.2
Hospital 1	38	5	13.2	2,256	104	4.6	1	1	100.0	16	2	12.5
Hospital 2	127	14	11.0	2,787	178	6.4	17	3	17.6	25	12	48.0
Hospital 3	71	23	32.4	2,449	270	11.0	3	1	33.3	18	6	33.3
Hospital 4	45	4	8.9	2,461	69	2.8	12	3	25.0	41	1	2.4
Hospital 5	121	15	12.4	4,833	411	8.4	6	3	50.0	121	17	14.0
Adjusted rate*			15.0			7.0			44.5			21.5

Hospital	Wound closure						Adjusted percent infected**
	Other			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Combined hospitals	36	12	33.3	79	3	3.8	
Hospital 1	4	0	0.0	23	0	0.0	5.2
Hospital 2	8	2	25.0	1	0	0.0	7.2
Hospital 3	1	0	0.0	31	2	6.5	11.9
Hospital 4	0	-	-	8	1	12.5	3.0
Hospital 5	23	10	43.5	16	0	0.0	8.8
Adjusted rate*			19.2				

* Incidence of infection by wound closure adjusted to a uniform hospital distribution.

** Incidence of infection by hospital adjusted to a uniform wound closure distribution.

Table B-48

Incidence of Infection by Duration of Preoperative Hospitalization and Hospital

Hospital	Duration of preoperative hospitalization											
	Outpatient			Under 2 days			2-6 days			7-13 days		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	403	12	3.0	6,783	405	6.0	4,820	354	7.3	1,932	176	9.1
Hospital 1	1	0	0.0	1,438	48	3.3	535	32	6.0	198	16	8.1
Hospital 2	111	7	6.3	1,087	53	4.9	1,088	68	6.2	414	33	8.0
Hospital 3	14	0	0.0	1,469	130	8.8	674	91	13.5	193	38	19.7
Hospital 4	5	0	0.0	893	27	3.0	762	13	1.7	349	9	2.6
Hospital 5	272	5	1.8	1,896	147	7.8	1,761	150	8.5	778	80	10.3
Adjusted rate*			1.8			6.0			7.4			9.8

Hospital	Duration of preoperative hospitalization									Adjusted percent infected**
	14-20 days			21 days and over			Not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Combined hospitals	746	82	11.0	773	114	14.7	156	14	9.0	
Hospital 1	72	7	9.7	44	7	15.9	50	2	4.0	5.6
Hospital 2	142	19	13.4	119	29	24.4	4	0	0.0	7.1
Hospital 3	82	18	22.0	85	19	22.4	56	6	10.7	12.7
Hospital 4	210	9	4.3	336	20	6.0	12	0	0.0	2.7
Hospital 5	240	29	12.1	189	39	20.6	34	6	17.6	9.0
Adjusted rate*			12.3			18.5				

* Incidence of infection by duration of preoperative hospitalization adjusted to a uniform hospital distribution.

** Incidence of infection by hospital adjusted to a uniform duration of preoperative hospitalization distribution.

Table B-49

Incidence of Infection by Duration of Operation and Hospital

Hospital	Duration of operation											
	Under 30 minutes			30-59 minutes			1 and under 2 hours			2 and under 3 hours		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	1,340	48	3.6	3,055	181	5.9	5,671	363	6.4	2,806	253	9.0
Hospital 1	263	4	1.5	394	15	3.8	883	31	3.5	446	23	5.2
Hospital 2	271	16	5.9	588	38	6.5	1,156	66	5.7	529	45	8.5
Hospital 3	83	4	4.8	317	27	8.5	855	89	10.4	589	65	11.0
Hospital 4	131	4	3.1	489	16	3.3	1,101	22	2.2	447	18	4.0
Hospital 5	592	20	3.4	1,267	85	6.7	1,766	155	8.8	795	102	12.8
Adjusted rate*			3.8			6.0			6.6			9.1

Hospital	Duration of operation											
	3 and under 4 hours			4 and under 5 hours			5 and under 6 hours			6 hours and over		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	1,295	129	10.0	651	71	10.9	337	52	15.4	267	47	17.6
Hospital 1	169	13	7.7	88	10	11.4	29	8	27.6	20	3	15.0
Hospital 2	177	18	10.2	85	8	9.4	81	9	11.1	67	9	13.4
Hospital 3	341	53	15.5	189	24	12.7	97	17	17.5	82	23	28.0
Hospital 4	236	7	3.0	125	5	4.0	56	4	7.1	55	2	3.6
Hospital 5	372	38	10.2	164	24	14.6	74	14	18.9	43	10	23.3
Adjusted rate*			9.5			11.1			16.6			17.7

Rejected case		Duration of operation			Adjusted percent infected**
Hospital	Not reported				
	Total wounds	Infected wounds	Percent infected		
Combined hospitals	191	13	6.8		
Hospital 1	46	5	10.9	5.1	
Hospital 2	11	0	0.0	7.2	
Hospital 3	20	0	0.0	10.6	
Hospital 4	17	0	0.0	3.1	
Hospital 5	97	8	8.2	9.5	

* Incidence of infection by duration of operation adjusted to a uniform hospital distribution.

** Incidence of infection by hospital adjusted to a uniform duration of operation distribution.

Table B-50

Incidence of Infection by Urgency and Hospital

Hospital	Urgency of operation								
	Elective			Urgent			Emergency		
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	13,183	877	6.7	846	99	11.7	1,334	161	12.1
Hospital 1	2,283	105	4.6	20	4	20.0	23	3	13.0
Hospital 2	2,826	194	6.9	20	3	15.0	76	10	13.2
Hospital 3	2,031	222	10.9	82	11	13.4	361	56	15.5
Hospital 4	1,749	49	2.8	194	4	2.1	550	24	4.4
Hospital 5	4,294	307	7.1	530	77	14.5	324	68	21.0
Adjusted rate*			6.6			13.2			14.7

Hospital	Urgency of operation			Adjusted percent infected**
	Urgency not reported			
	Total wounds	Infected wounds	Percent infected	
Combined hospitals	250	20	8.0	
Hospital 1	12	0	0.0	6.2
Hospital 2	43	2	4.7	7.9
Hospital 3	99	13	13.1	11.4
Hospital 4	74	1	1.4	2.9
Hospital 5	22	4	18.2	8.7

* Incidence of infection by urgency of operation adjusted to a uniform hospital distribution.

** Incidence of infection by hospitals adjusted to a uniform urgency of operation distribution.

Table B-51

Incidence of Infection by Drain Site Provided and Hospital

Hospital	No drain site provided			One or more drain sites provided								
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	Subcutaneous wound with or without other			Serous cavity wound with or without other		
							Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected
Combined hospitals	9,447	474	5.0	6,105	678	11.1	3,014	348	11.5	1,422	171	12.0
Hospital 1	1,301	35	2.7	1,019	76	7.5	444	38	8.6	105	6	5.7
Hospital 2	1,881	105	5.6	1,084	104	9.6	524	47	9.0	419	42	10.0
Hospital 3	1,559	119	7.6	1,008	109	10.8	677	125	18.5	96	13	13.6
Hospital 4	1,931	44	2.3	636	34	5.3	370	23	6.2	71	5	7.0
Hospital 5	2,775	171	6.2	2,358	281	11.9	999	113	11.3	771	105	13.6
Adjusted rate*			5.2			10.8			10.8			12.2

Hospital	One or more drain sites provided						Adjusted percent infected**
	Remote with or without other			Drain site not reported			
	Total wounds	Infected wounds	Percent infected	Total wounds	Infected wounds	Percent infected	
Combined hospitals	2,042	230	11.3	61	5	8.2	
Hospital 1	500	34	6.8	18	1	5.6	4.6
Hospital 2	193	23	11.9	0	-	-	7.4
Hospital 3	303	53	17.5	6	0	0.0	12.3
Hospital 4	195	6	3.1	0	-	-	3.6
Hospital 5	851	114	13.4	37	4	10.8	8.7
Adjusted rate*			11.1				

* Incidence of infection by drain site provided adjusted to a uniform hospital distribution.

** Incidence of infection by hospital adjusted to a uniform drain site provided distribution.

APPENDIX C

STANDARD BACTERIOLOGIC METHODS

THE bacteriologists of each of the participating institutions held several discussions during the organizational meeting at Cincinnati General Hospital, as well as during the workshop held at the Communicable Disease Center. There was general agreement that standardized methods were to be employed whenever possible, with the realization, however, that the limitations imposed by the comprehensive nature of the study precluded a detailed analysis for differentiation of all organisms at the species and strain level. For this reason, the choice of methods for identification of organisms other than staphylococci was left to the discretion of the individual bacteriologist and organisms were to be reported only by genus.

The standard methods employed by all groups for obtaining and culturing the specimens, performing the coagulase test, determining antibiotic sensitivities, and phage typing staphylococci are outlined below. The methods of anaerobiosis varied among the five institutions.

a. *Methods for Obtaining Specimens for Culture*

(1) *Personnel Cultures*

Personnel cultures were obtained by swabbing both anterior nares with a single dry swab.

(2) *Wound Cultures*

Postoperative wound drainage cultures were obtained by swabbing the wound with two dry cotton applicator swabs. The swabs were cultured as soon as possible; those which could not be cultured immediately were preserved in 1 to 2 ml of thioglycollate broth at refrigerator temperature until they could be cultured.

b. *Methods of Culture*

(1) *Personnel*

Swabs of the anterior nares were streaked on a single blood agar plate and incubated aerobically for 24 and 48 hr at 37 C.

(2) *Wounds*

Each specimen was cultured on aerobic and anaerobic blood agar plates, on eosin methylene blue agar plates, and in a tube of cooked-meat medium (Difco). The blood plates were prepared with 2-percent rabbit or horse blood in a brain-heart infusion or trypticase-soy agar base. Aerobic plates were incubated for 24 to 48 hr and the anaerobic plates for 48 to 72 hr at 37 C. Gram-stained smears were made of the cooked-meat cultures at 3, 5, 7, and 10 days, and subcultures were made on aerobic and anaerobic blood agar plates whenever the gram-stained smears revealed morphological forms that had not been observed on the primary agar plates. A culture was not reported as negative until after 10 days of incubation of the cooked-meat medium.

Urine and other biological fluids were sedimented by centrifugation and cultured in the same manner as wound cultures.

Blood specimens were cultured in Castaneda blood-culture bottles and incubated for 10 days before being reported as negative.

c. *Methods of Determining Antibiotic Sensitivities*

Sensitivity tests were done only on coagulase-positive staphylococci from the personnel cultures, and on both coagulase-positive and coagulase-negative staphylococci from operative wound cultures,

postoperative wound drainages, and postoperative cultures from other sites of infection. The tests were performed by spreading with a cotton swab an 18- to 24-hour brain-heart infusion broth (BBL) culture over the surface of a plate of brain-heart infusion agar (BBL). Standard 100 x 15-mm Petri dishes containing 11 ml of medium were employed. Low-concentration BBL Sensi-discs were placed on the surface of the seeded agar after allowing 10 to 15 min for drying. The organism was reported as sensitive if any clear, distinct zone of inhibition surrounded the disc after overnight incubation at 37 C. The antibiotics used were penicillin, streptomycin, tetracycline, chloramphenicol, erythromycin, and novobiocin.

d. *Method of Performing Coagulase Test*

Coagulase tests were conducted by introducing 0.1 ml of an 18- to 24-hr brain-heart infusion broth culture into 0.5 ml of commercial dehydrated coagulase plasma (BBL). The mixture was incubated for 3 hr at 37 C. The presence of any small, definite clot indicated a positive test for

coagulase activity. Coagulase-positive and -negative controls were run each time the test was performed. The control cultures used by all participating institutions were derived from the same strains.

e. *Method of Phage Typing Staphylococci*

Staphylococci were phage-typed by the method recommended by the Communicable Disease Center (1958), which furnished the phage suspensions and propagating strains to each participating institution. The only modification of the method involved the use of a #30 hypodermic needle for dropping the routine test dilution (RTD) on the plates. Phages were propagated at the Communicable Disease Center. Each participating institution titrated the phage suspensions received from the Communicable Disease Center to determine the RTD to be employed in typing.

The phages employed were 29, 52, 52A, 79, 80, 3A, 3B, 3C, 55, 71, 6, 7, 42E, 47, 53, 54, 73, 75, 77, 42D, 187, 83(VA4), 44A, and 81. Use of phages 44A and 73 was discontinued, however, in September, 1960.

APPENDIX D

DETAILED BACTERIOLOGIC DATA

Table D-1

Percent Frequency of Coagulase-Positive Staphylococci in Personnel Cultures,
by Month and Year and by Individual Hospital

Month and year	Hospital				
	1	2	3	4	5
November 1959	41.7	--	--	--	--
December	24.5	--	--	--	--
January 1960	6.4	23.3	28.8	24.6	46.4
February	84.2	19.0	26.7	14.0	32.6
March	20.2	21.1	37.2	10.7	38.2
April	16.7	26.3	22.8	19.4	40.3
May	18.7	23.4	32.5	17.2	--
June	0.0	22.0	38.8	13.5	--
July	16.4	19.7	32.9	17.4	--
August	41.2	16.7	38.2	14.8	32.5
September	44.0	13.0	25.6	17.4	25.0
October	21.4	8.0	25.0	16.4	30.5
November	13.0	13.3	29.0	16.2	23.2
December	42.9	7.3	34.7	9.7	31.8
January 1961	17.4	15.4	29.3	13.7	20.1
February	12.3	12.1	37.0	22.7	21.8
March	9.7	12.6	36.0	23.9	15.3
April	3.3	12.1	--	25.0	20.2
May	10.0	--	22.1	19.3	17.7
June	16.9	21.1	29.4	29.8	30.0
July	20.6	11.2	36.4	23.1	--
August	25.9	7.6	30.8	28.2	28.2
September	15.1	8.5	24.2	19.4	20.0
October	1.2	12.0	34.8	38.5	29.7
November	0.0	8.0	36.4	14.3	29.7
December	4.2	4.0	--	31.0	26.3
January 1962	--	5.2	29.5	18.8	--

--: no cultures reported.

Table D-2

Frequency of Organisms Recovered From Cultures of Postoperative Drainage
of All Wounds, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	139	100	353	100	189	100	292	100	415	100
Sterile cultures	10	7.2	137	38.8	27	14.3	44	15.1	101	24.3
Organism:										
Coag.-pos. staphylococci	21	15.1	49	13.9	43	22.8	80	27.4	75	18.1
Coag.-neg. staphylococci	38	27.3	94	26.6	69	36.5	72	24.7	177	42.7
Alpha-hemolytic streptococci	5	3.6	9	2.5	2	1.1	5	1.7	15	3.6
Beta-hemolytic streptococci	0	0.0	15	4.2	3	1.6	8	2.7	7	1.7
Nonhemolytic streptococci	5	3.6	34	9.6	20	10.6	36	12.3	27	6.5
Anaerobic streptococci	0	0.0	2	0.6	0	0.0	4	1.4	0	0.0
Escherichia sp.	33	23.7	40	11.3	36	19.0	53	18.2	47	11.3
Aerobacter-Klebsiella	10	7.2	12	3.4	13	6.9	26	8.9	26	6.3
Paracolonobacterium sp.	1	0.7	11	3.1	3	1.6	18	6.2	29	7.0
Proteus sp.	10	7.2	26	7.4	16	8.5	23	7.9	35	8.4
Pseudomonas sp.	9	6.5	24	6.8	24	12.7	24	8.2	31	7.5
Clostridium sp.	1	0.7	4	1.1	1	0.5	2	0.7	1	0.2
Bacteroides sp.	0	0.0	2	0.6	7	3.7	9	3.1	0	0.0
Other	35	25.2	26	7.4	54	28.6	110	37.7	64	15.4
Unidentified	3	2.2	1	0.3	2	1.1	3	1.0	1	0.2

Table D-3

Frequency of Organisms Cultured From Postoperative Drainage of All Wounds,
by Postoperative Infection Status and by Individual Hospital

	Hospital 1			Hospital 2			Hospital 3			Hospital 4			Hospital 5		
	Post-op. Infected No.	Post-op. Non-Infected No.	%	Post-op. Infected No.	Post-op. Non-Infected No.	%	Post-op. Infected No.	Post-op. Non-Infected No.	%	Post-op. Infected No.	Post-op. Non-Infected No.	%	Post-op. Infected No.	Post-op. Non-Infected No.	%
Total wounds cultured	45	100	94	100	53	100	105	100	84	100	36	100	151	100	100
Sterile cultures	2	4.4	8	8.5	9	17.0	3	2.9	24	28.6	0	0.0	22	14.6	29.9
Organism:															
Coag.-pos. staphylococci	16	35.6	5	5.3	17	32.1	32	10.7	37	35.2	6	7.1	17	47.2	15.2
Coag.-neg. staphylococci	13	28.9	25	26.6	4	7.5	90	30.0	33	31.4	36	42.9	12	33.3	43.9
Alpha-hemolytic streptococci	5	11.1	0	0.0	1	1.9	8	2.7	1	1.0	1	1.2	2	5.6	3.4
Beta-hemolytic streptococci	0	0.0	0	0.0	5	9.4	10	3.3	2	2.4	2	2.4	0	0.0	2.7
Nonhemolytic streptococci	1	2.2	4	4.3	8	15.1	26	8.7	12	11.4	8	9.5	9	6.0	6.8
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	1	0.0	0.0
Escherichia sp.	13	28.9	20	21.3	13	24.5	27	9.0	23	21.9	13	15.5	29	19.2	6.8
Aerobacter-Klebsiella	6	13.3	4	4.3	2	3.8	10	3.3	3	2.8	6	7.1	12	7.9	5.3
Paracolonobacterium sp.	0	0.0	1	1.1	4	7.5	7	2.3	1	1.0	2	2.4	4	2.7	6.8
Proteus sp.	3	6.7	7	7.4	11	20.6	14	4.7	12	11.4	4	4.8	17	12.6	6.1
Pseudomonas sp.	7	15.6	2	2.1	11	20.8	13	4.3	19	18.1	5	6.0	23	16.6	6.8
Clostridium sp.	1	2.2	0	0.0	3	5.7	1	0.3	0	0.0	1	1.2	1	0.4	0.4
Bacteroides sp.	0	0.0	0	0.0	1	1.9	1	0.3	4	3.8	3	3.6	2	1.4	0.0
Other	2	4.4	33	35.1	4	7.5	22	7.3	27	25.7	32	32.1	12	8.6	14.0
Unidentified	0	0.0	3	3.2	0	0.0	1	0.3	2	1.9	0	0.0	0	0.0	0.4

Table D-4

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of All Wounds,
by Ultraviolet Irradiation Status and by Individual Hospital

	Hospital 1			Hospital 2			Hospital 3			Hospital 4			Hospital 5		
	Irradiated No.	Unirradiated No.	%	Irradiated No.	Unirradiated No.	%	Irradiated No.	Unirradiated No.	%	Irradiated No.	Unirradiated No.	%	Irradiated No.	Unirradiated No.	%
Total wounds cultured	68	100	71	100	179	100	97	100	92	100	144	100	201	100	214
Sterile cultures	5	7.4	5	7.0	75	41.9	62	35.6	19	19.6	8	8.7	16	11.1	28
Organism:															
Coag.-pos. staphylococci	10	14.7	11	15.5	21	11.7	28	16.1	15	15.5	28	30.4	45	31.3	35
Coag.-neg. staphylococci	17	25.0	21	29.6	44	24.6	50	28.7	38	39.2	31	33.7	39	27.1	33
Alpha-hemolytic streptococci	1	1.5	4	5.6	5	2.8	4	2.3	2	2.1	0	0.0	4	2.7	9
Beta-hemolytic streptococci	0	0.0	0	0.0	11	6.1	4	2.3	2	2.1	1	1.1	4	2.8	4
Nonhemolytic streptococci	3	4.4	2	2.8	11	6.1	23	13.2	9	9.3	11	12.0	22	15.3	14
Anaerobic streptococci	0	0.0	0	0.0	1	0.6	1	0.6	0	0.0	0	0.0	4	2.8	0
Escherichia sp.	17	25.0	16	22.5	19	10.6	21	12.1	14	14.4	22	23.9	30	20.8	23
Aerobacter-Klebsiella	5	7.4	5	7.0	7	3.9	5	2.9	5	5.2	8	8.7	11	7.6	15
Paracolonobacterium sp.	1	1.5	0	0.0	5	2.8	6	3.4	2	2.1	1	1.1	8	5.6	10
Proteus sp.	3	4.4	7	9.9	16	8.9	10	5.7	11	11.3	5	5.4	9	6.3	14
Pseudomonas sp.	4	5.9	5	7.0	12	6.7	12	6.9	7	7.2	17	18.5	14	9.7	10
Clostridium sp.	1	1.5	0	0.0	3	1.7	1	0.6	0	0.0	1	1.1	2	1.4	0
Bacteroides sp.	0	0.0	0	0.0	2	1.1	0	0.0	5	5.2	2	2.2	6	4.2	3
Other	21	30.0	14	19.7	11	6.1	15	8.6	29	29.9	25	27.2	58	40.3	52
Unidentified	3	4.4	0	0.0	1	0.6	0	0.0	0	0.0	2	2.2	1	0.7	2

Table D-5

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of All Wounds,
by Ultraviolet Irradiation Status and by Postoperative Infection Status,
Individual Hospital

	Hospital 1							
	Irradiated				Unirradiated			
	Infected	Non-infected	Infected	Non-infected	Infected	Non-infected	Infected	Non-infected
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	18	100	50	100	27	100	44	100
Sterile cultures	1	5.6	4	8.0	1	3.7	4	9.1
Organism:								
Coag.-pos. staphylococci	6	33.3	4	8.0	10	37.0	1	2.3
Coag.-neg. staphylococci	5	27.8	12	24.0	8	29.6	13	29.5
Alpha-hemolytic streptococci	1	5.6	0	0.0	4	14.8	0	0.0
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	0	0.0
Nonhemolytic streptococci	1	5.6	2	4.0	0	0.0	2	4.5
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	6	33.3	11	22.0	7	25.9	9	20.5
Aerobacter-Klebsiella	2	11.1	3	6.0	4	14.8	1	2.3
Paracolonobactrum sp.	0	0.0	1	2.0	0	0.0	0	0.0
Proteus sp.	1	5.6	2	4.0	2	7.4	5	11.4
Pseudomonas sp.	4	22.2	0	0.0	3	11.1	2	4.5
Clostridium sp.	1	5.6	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0
Other	1	5.6	20	40.0	1	3.7	13	29.5
Unidentified	0	0.0	3	6.0	0	0.0	0	0.0

Table D-6

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of All Wounds,
by Ultraviolet Irradiation Status and by Postoperative Infection Status,
Individual Hospital

	Hospital 2							
	Irradiated				Unirradiated			
	Infected	Non-infected	Infected	Non-infected	Infected	Non-infected	Infected	Non-infected
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	28	100	151	100	25	100	149	100
Sterile cultures	4	14.3	71	47.0	5	20.0	57	38.3
Organism:								
Coag.-pos. staphylococci	8	28.6	13	8.6	9	36.0	19	12.8
Coag.-neg. staphylococci	2	7.1	42	27.8	2	8.0	48	32.2
Alpha-hemolytic streptococci	1	3.6	4	2.6	0	0.0	4	2.7
Beta-hemolytic streptococci	4	14.3	7	4.6	1	4.0	3	2.0
Nonhemolytic streptococci	3	10.7	8	5.3	5	20.0	18	12.1
Anaerobic streptococci	0	0.0	1	0.7	0	0.0	1	0.7
Escherichia sp.	5	17.9	14	9.3	8	32.0	13	8.7
Aerobacter-Klebsiella	2	7.1	5	3.3	0	0.0	5	3.4
Paracolonobactrum sp.	2	7.1	3	2.0	2	8.0	4	2.7
Proteus sp.	9	32.1	7	4.6	3	12.0	7	4.7
Pseudomonas sp.	6	21.4	6	4.0	5	20.0	7	4.7
Clostridium sp.	3	10.7	0	0.0	0	0.0	1	0.7
Bacteroides sp.	1	3.6	1	0.7	0	0.0	0	0.0
Other	3	10.7	8	5.3	1	4.0	14	9.4
Unidentified	0	0.0	1	0.7	0	0.0	0	0.0

Table D-7

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of
All Wounds, by Ultraviolet Irradiation Status and by Post-
operative Infection Status, Individual Hospital

	Hospital 3							
	Irradiated				Unirradiated			
	Infected	Non-infected	Infected	Non-infected	Infected	Non-infected	Infected	Non-infected
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	55	100	42	100	50	100	42	100
Sterile cultures	2	3.6	17	40.5	1	2.0	7	16.7
Organism:								
Coag.-pos. staphylococci	11	20.0	4	9.5	26	52.0	2	4.8
Coag.-neg. staphylococci	24	43.6	14	33.3	9	18.0	22	52.4
Alpha-hemolytic streptococci	1	1.8	1	2.4	0	0.0	0	0.0
Beta-hemolytic streptococci	0	0.0	2	4.8	1	2.0	0	0.0
Nonhemolytic streptococci	5	9.1	4	9.5	7	14.0	4	9.5
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	10	18.2	4	9.5	13	26.0	9	21.4
Aerobacter-Klebsiella	3	5.5	2	4.8	7	14.0	1	2.4
Paracolonobactrum sp.	1	1.8	1	2.4	0	0.0	1	2.4
Proteus sp.	10	18.2	1	2.4	2	4.0	3	7.1
Pseudomonas sp.	5	9.1	2	4.8	14	28.0	3	7.1
Clostridium sp.	0	0.0	0	0.0	0	0.0	1	2.4
Bacteroides sp.	2	3.6	3	7.1	2	4.0	0	0.0
Other	17	30.9	12	28.6	10	20.0	15	35.7
Unidentified	0	0.0	0	0.0	2	4.0	0	0.0

Table D-8

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of All Wounds,
by Ultraviolet Irradiation Status and by Postoperative Infection Status,
Individual Hospital

	Hospital 4							
	Irradiated				Unirradiated			
	Infected		Non-infected		Infected		Non-infected	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	19	100	125	100	17	100	131	100
Sterile cultures	0	0.0	16	12.8	0	0.0	28	21.4
Organism:								
Coag.-pos. staphylococci	9	47.4	36	28.8	8	47.1	27	20.6
Coag.-neg. staphylococci	6	31.6	33	26.4	6	35.3	27	20.6
Alpha-hemolytic streptococci	0	0.0	1	0.8	1	5.9	3	2.3
Beta-hemolytic streptococci	1	5.3	3	2.4	1	5.9	3	2.3
Nonhemolytic streptococci	5	26.3	17	13.6	3	17.6	11	8.4
Anaerobic streptococci	1	5.3	3	2.4	0	0.0	0	0.0
Escherichia sp.	4	21.1	26	20.8	5	29.4	18	13.7
Aerobacter-Klebsiella	1	5.3	10	8.0	3	17.6	12	9.2
Paracolobactrum sp.	4	21.1	4	3.2	2	11.8	8	6.1
Proteus sp.	2	10.5	7	5.6	4	23.5	10	7.6
Pseudomonas sp.	0	0.0	14	11.2	1	5.9	9	6.9
Clostridium sp.	1	5.3	1	0.8	0	0.0	0	0.0
Bacteroides sp.	2	10.5	4	3.2	0	0.0	3	2.3
Other	6	31.6	52	41.6	6	35.3	46	35.1
Unidentified	1	5.3	0	0.0	0	0.0	2	1.5

Table D-9

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of All Wounds,
by Ultraviolet Irradiation Status and by Postoperative Infection Status,
Individual Hospital

	Hospital 5							
	Irradiated				Unirradiated			
	Infected		Non-infected		Infected		Non-infected	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	77	100	124	100	74	100	140	100
Sterile cultures	11	14.3	34	27.4	11	14.9	45	32.1
Organism:								
Coag.-pos. staphylococci	16	20.8	19	15.3	19	25.7	21	15.0
Coag.-neg. staphylococci	33	42.9	56	45.2	28	37.8	60	42.9
Alpha-hemolytic streptococci	5	6.5	4	3.2	1	1.4	5	3.6
Beta-hemolytic streptococci	0	0.0	1	0.8	0	0.0	6	4.3
Nonhemolytic streptococci	6	7.8	8	6.5	3	4.1	10	7.1
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	19	24.7	11	8.9	10	13.5	7	5.0
Aerobacter-Klebsiella	7	9.1	8	6.5	5	6.8	6	4.3
Paracolobactrum sp.	6	7.8	8	6.5	5	6.8	10	7.1
Proteus sp.	12	15.6	9	7.3	7	9.5	7	5.0
Pseudomonas sp.	8	10.4	11	8.9	5	6.8	7	5.0
Clostridium sp.	0	0.0	1	0.8	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0
Other	15	19.5	16	12.9	12	16.2	21	15.0
Unidentified	0	0.0	1	0.8	0	0.0	0	0.0

Table D-10

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Clean Wounds
That Developed Postoperative Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	16	100	30	100	53	100	8	100	74	100
Sterile cultures	0	0.0	5	16.7	1	1.9	0	0.0	14	18.9
Organism:										
Coag.-pos. staphylococci	7	43.8	8	26.7	22	41.5	5	62.5	19	25.7
Coag.-neg. staphylococci	4	25.0	3	10.0	21	39.6	3	37.5	34	45.9
Alpha-hemolytic streptococci	1	6.3	1	3.3	0	0.0	1	12.5	4	5.4
Beta-hemolytic streptococci	0	0.0	4	13.3	1	1.9	1	12.5	0	0.0
Nonhemolytic streptococci	0	0.0	5	16.7	5	9.4	1	12.5	4	5.4
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	3	18.8	8	26.7	6	11.3	2	25.0	10	13.5
Aerobacter-Klebsiella	3	18.8	1	3.3	6	11.3	0	0.0	5	6.8
Paracolobactrum	0	0.0	2	6.7	1	1.9	1	12.5	5	6.8
Proteus sp.	1	6.3	8	26.7	3	5.7	2	25.0	6	8.1
Pseudomonas sp.	2	12.5	5	16.7	9	17.0	0	0.0	5	6.8
Clostridium sp.	0	0.0	2	6.7	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	1	3.3	2	3.8	1	12.5	0	0.0
Other	0	0.0	2	6.7	8	15.1	4	50.0	9	12.2
Unidentified	0	0.0	0	0.0	1	1.9	1	12.5	0	0.0

Table D-11

Frequency of Organisms Recovered From Cultures of Postoperative Drainage
of Clean-Contaminated Wounds That Developed Postoperative Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	17	100	12	100	40	100	13	100	41	100
Sterile cultures	2	11.8	1	8.3	0	0.0	0	0.0	4	9.8
Organism:										
Coag.-pos. staphylococci	5	29.4	5	41.7	13	32.5	2	15.4	6	14.6
Coag.-neg. staphylococci	7	41.2	0	0.0	12	30.0	6	46.2	15	36.6
Alpha-hemolytic streptococci	1	5.9	0	0.0	1	2.5	0	0.0	1	2.4
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	7.7	0	0.0
Nonhemolytic streptococci	0	0.0	3	25.0	4	10.0	2	15.4	2	4.9
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	4	23.5	3	25.0	10	25.0	3	23.1	8	19.5
Aerobacter-Klebsiella	2	11.8	1	8.3	4	10.0	3	23.1	6	14.6
Paracolonbactrum sp.	0	0.0	1	8.3	0	0.0	3	23.1	1	2.4
Proteus sp.	1	5.9	1	8.3	7	17.5	3	23.1	7	17.1
Pseudomonas sp.	2	11.8	4	33.3	7	17.5	1	7.7	6	14.6
Clostridium sp.	1	5.9	1	8.3	0	0.0	1	7.7	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	2	11.8	0	0.0	18	45.0	5	38.5	9	22.0
Unidentified	0	0.0	0	0.0	1	2.5	0	0.0	0	0.0

Table D-12

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Contaminated
Wounds That Developed Postoperative Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	5	100	1	100	5	100	6	100	20	100
Sterile cultures	0	0.0	0	0.0	1	20.0	0	0.0	2	10.0
Organism:										
Coag.-pos. staphylococci	3	60.0	0	0.0	1	20.0	4	66.7	6	30.0
Coag.-neg. staphylococci	0	0.0	0	0.0	0	0.0	2	33.3	8	40.0
Alpha-hemolytic streptococci	1	20.0	0	0.0	0	0.0	0	0.0	1	5.0
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Nonhemolytic streptococci	1	20.0	0	0.0	0	0.0	3	50.0	1	5.0
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	3	60.0	1	100	3	60.0	3	50.0	5	25.0
Aerobacter-Klebsiella	0	0.0	0	0.0	0	0.0	1	16.7	0	0.0
Paracolonbactrum sp.	0	0.0	0	0.0	0	0.0	0	0.0	5	25.0
Proteus sp.	0	0.0	0	0.0	0	0.0	0	0.0	5	25.0
Pseudomonas sp.	1	20.0	1	100	1	20.0	0	0.0	1	5.0
Clostridium sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	2	40.0	0	0.0
Other	0	0.0	0	0.0	0	0.0	2	33.3	7	35.0
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table D-13

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Dirty Wounds That
Developed Postoperative Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	7	100	10	100	7	100	9	100	16	100
Sterile cultures	0	0.0	3	30.0	1	14.3	0	0.0	2	12.5
Organism:										
Coag.-pos. staphylococci	1	14.3	4	40.0	1	14.3	6	66.7	4	25.0
Coag.-neg. staphylococci	2	28.6	1	10.0	0	0.0	1	11.1	4	25.0
Alpha-hemolytic streptococci	2	28.6	0	0.0	0	0.0	0	0.0	0	0.0
Beta-hemolytic streptococci	0	0.0	1	10.0	0	0.0	0	0.0	0	0.0
Nonhemolytic streptococci	0	0.0	0	0.0	3	42.9	2	22.2	2	12.5
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0
Escherichia sp.	3	42.9	1	10.0	4	57.1	1	11.1	6	37.5
Aerobacter-Klebsiella	1	14.3	0	0.0	0	0.0	0	0.0	1	6.3
Paracolonbactrum sp.	0	0.0	1	10.0	0	0.0	2	22.2	0	0.0
Proteus sp.	1	14.3	3	30.0	2	28.6	1	11.1	1	6.3
Pseudomonas sp.	2	28.6	1	10.0	2	28.6	0	0.0	1	6.3
Clostridium sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0
Other	0	0.0	2	20.0	1	14.3	1	11.1	2	12.5
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table D-14

Frequency of Organisms Recovered from Cultures of Postoperative Drainage
of Clean Wounds That Did Not Develop Clinical Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	47	100	235	100	48	100	97	100	166	100
Sterile cultures	5	10.6	100	42.6	13	27.1	21	21.6	55	33.1
Organism:										
Coag.-pos. staphylococci	3	6.4	23	9.8	3	6.3	25	25.8	22	13.3
Coag.-neg. staphylococci	13	27.7	75	31.9	24	50.0	23	23.7	80	48.2
Alpha-hemolytic streptococci	0	0.0	7	3.0	1	2.1	1	1.0	4	2.4
Beta-hemolytic streptococci	0	0.0	8	3.4	1	2.1	2	2.1	3	1.8
Nonhemolytic streptococci	3	6.4	17	7.2	2	4.2	8	8.2	12	7.2
Anaerobic streptococci	0	0.0	2	0.9	0	0.0	2	2.1	0	0.0
Escherichia sp.	7	14.9	24	10.2	2	4.2	9	9.3	7	4.2
Aerobacter-Klebsiella	3	6.4	8	3.4	3	6.3	7	7.2	7	4.2
Paracolobactrum sp.	0	0.0	5	2.1	1	2.1	4	4.1	7	4.2
Proteus sp.	4	8.5	8	3.4	0	0.0	6	6.2	9	5.4
Pseudomonas sp.	0	0.0	4	1.7	1	2.1	7	7.2	8	4.8
Clostridium sp.	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	1	0.4	1	2.1	6	6.2	0	0.0
Other	17	36.2	16	6.8	17	35.4	46	47.4	24	14.5
Unidentified	1	2.1	1	0.4	0	0.0	0	0.0	1	0.6

Table D-15

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Clean-Contaminated
Wounds That Did Not Develop Clinical Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	40	100	53	100	29	100	98	100	66	100
Sterile cultures	2	5.0	25	47.2	8	27.6	13	13.3	18	27.3
Organism:										
Coag.-pos. staphylococci	2	5.0	5	9.4	3	10.3	25	25.5	12	18.2
Coag.-neg. staphylococci	10	25.0	12	22.6	9	31.0	27	27.6	23	34.8
Alpha-hemolytic streptococci	0	0.0	1	1.9	0	0.0	1	1.0	5	7.6
Beta-hemolytic streptococci	0	0.0	1	1.9	1	3.4	3	3.1	2	3.0
Nonhemolytic streptococci	1	2.5	6	11.3	5	17.2	12	12.2	4	6.1
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0
Escherichia sp.	11	27.5	1	1.9	7	24.1	14	14.3	7	10.6
Aerobacter-Klebsiella	1	2.5	0	0.0	0	0.0	8	8.2	5	7.6
Paracolobactrum sp.	1	2.5	1	1.9	1	3.4	6	6.1	6	9.1
Proteus sp.	2	5.0	3	5.7	4	13.8	7	5.1	4	6.1
Pseudomonas sp.	1	2.5	6	11.3	4	13.8	8	8.2	8	12.1
Clostridium sp.	0	0.0	0	0.0	1	3.4	1	1.0	1	1.5
Bacteroides sp.	0	0.0	0	0.0	1	3.4	0	0.0	0	0.0
Other	15	37.5	5	9.4	9	31.0	35	34.7	8	12.1
Unidentified	2	5.0	0	0.0	0	0.0	2	2.0	0	0.0

Table D-16

Frequency of Organisms Recovered From Cultures of Postoperative Drainage
of Contaminated Wounds That Did Not Develop Clinical Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	4	100	5	100	3	100	25	100	21	100
Sterile cultures	1	25.0	1	20.0	2	66.7	4	16.0	4	19.0
Organism:										
Coag.-pos. staphylococci	0	0.0	1	20.0	0	0.0	9	36.0	5	23.8
Coag.-neg. staphylococci	1	25.0	2	40.0	1	33.3	6	24.0	10	47.6
Alpha-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	4.0	0	0.0
Beta-hemolytic streptococci	0	0.0	1	20.0	0	0.0	0	0.0	1	4.8
Nonhemolytic streptococci	0	0.0	2	40.0	1	33.3	5	20.0	1	4.8
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	1	25.0	2	40.0	1	33.3	6	24.0	1	4.8
Aerobacter-Klebsiella	0	0.0	2	40.0	0	0.0	5	20.0	1	4.8
Paracolobactrum sp.	0	0.0	0	0.0	0	0.0	1	4.0	2	9.5
Proteus sp.	1	25.0	2	40.0	0	0.0	1	4.0	1	4.8
Pseudomonas sp.	0	0.0	2	40.0	0	0.0	2	8.0	1	4.8
Clostridium sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	1	20.0	0	0.0	4	16.0	2	9.5
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table D-17

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Dirty Wounds
That Did Not Develop Clinical Infection, by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total wounds cultured	3	100	7	100	4	100	36	100	11	100
Sterile cultures	0	0.0	2	28.6	1	25.0	6	16.7	2	18.2
Organism:										
Coag.-pos. staphylococci	0	0.0	3	42.9	0	0.0	4	11.1	1	9.1
Coag.-neg. staphylococci	1	33.3	1	14.3	2	50.0	4	11.1	3	29.7
Alpha-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	2.8	0	0.0
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	2.8	1	9.1
Nonhemolytic streptococci	0	0.0	1	14.3	0	0.0	3	8.3	1	9.1
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	1	33.3	0	0.0	3	75.0	15	41.7	3	27.3
Aerobacter-Klebsiella	0	0.0	0	0.0	0	0.0	2	5.6	1	9.1
Paracolonobactrum sp.	0	0.0	1	14.3	0	0.0	1	2.8	3	27.3
Proteus sp.	0	0.0	1	14.3	0	0.0	3	8.3	2	18.2
Pseudomonas sp.	1	33.3	1	14.3	0	0.0	6	16.7	1	9.1
Clostridium sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	1	25.0	1	2.8	0	0.0
Other	1	33.3	0	0.0	1	25.0	13	36.1	3	27.3
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Clean Wounds That Developed Infection, by Ultraviolet Irradiation Status and by Individual Hospital

Table D-19

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Clean-Contaminated Wounds That Developed Infections, by Ultraviolet Irradiation Status and by Individual Hospital

	Hospital 1			Hospital 2			Hospital 3			Hospital 4			Hospital 5							
	No.	%	Irradiated	No.	%	Irradiated	No.	%	Irradiated	No.	%	Irradiated	No.	%	Irradiated					
Total wounds cultured	5	100	12	100	7	100	5	100	24	100	16	100	4	100	9	100	22	100	19	100
Sterile cultures	1	20.0	1	8.3	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	0	0.0	3	13.6	1	5.3
Organism:																				
Coag.-pos. staphylococci	1	20.0	4	33.3	3	42.9	2	40.0	5	20.8	8	50.0	0	0.0	2	22.2	4	18.2	2	10.5
Coag.-neg. staphylococci	2	40.0	5	41.7	0	0.0	0	0.0	9	37.5	3	18.8	1	25.0	5	55.6	8	36.4	7	36.8
Alpha-hemolytic streptococci	0	0.0	1	8.3	0	0.0	0	0.0	1	4.2	0	0.0	0	0.0	0	0.0	0	0.0	1	5.3
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Nonhemolytic streptococci	0	0.0	0	0.0	1	14.3	2	40.0	2	8.3	2	12.5	0	0.0	1	11.1	0	0.0	0	0.0
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	2	40.0	2	16.7	2	28.6	1	20.0	6	25.0	4	25.0	1	25.0	2	22.2	5	22.7	3	15.8
Aerobacter-Klebsiella	2	40.0	0	0.0	1	14.3	0	0.0	1	4.2	3	18.8	0	0.0	3	33.3	3	13.6	3	15.8
Paracoloclostrum sp.	0	0.0	0	0.0	0	0.0	1	20.0	0	0.0	0	0.0	2	50.0	0	0.0	1	4.2	1	5.3
Proteus sp.	0	0.0	1	8.3	1	14.3	0	0.0	6	25.0	1	6.3	0	0.0	3	33.3	5	22.7	2	10.5
Pseudomonas sp.	0	0.0	2	16.7	3	42.9	1	20.0	0	0.0	7	43.8	0	0.0	1	11.1	5	22.7	1	5.3
Clostridium sp.	1	20.0	0	0.0	1	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	1	20.0	1	8.3	0	0.0	0	0.0	13	54.2	5	31.2	2	50.0	3	33.3	4	18.2	5	26.3
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.2	0	0.0	0	0.0	0	0.0	0	0.0

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Contaminated Wounds That Developed Infection, by Ultraviolet Irradiation Status and by Individual Hospital

[illegible]

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Dirty Wounds That Developed Infection, by Ultraviolet Irradiation Status and by Individual Hospital

[illegible]

Table D-22

	Hospital 1			Hospital 2			Hospital 3			Hospital 4			Hospital 5						
	No.	%		Irradiated	Unirradiated	%	No.	%		Irradiated	Unirradiated	%	No.	%		Irradiated	Unirradiated	%	
Total wounds cultured	28	100	19	100	120	100	115	100	27	100	21	100	51	100	46	100	86	100	
Sterile cultures	3	10.7	2	10.5	57	47.5	4.3	37.4	11	40.7	2	9.5	4	7.8	17	37.0	27	33.8	32.6
Organism:																			
Coag.-pos. staphylococci	3	10.7	0	0.0	9	7.5	14	12.2	2	7.4	1	4.8	15	29.4	10	21.7	9	11.3	13
Coag.-neg. staphylococci	6	21.4	7	36.8	35	29.2	40	34.8	11	40.7	13	61.9	14	27.5	9	19.6	38	47.5	42
Alpha-hemolytic streptococci	0	0.0	0	0.0	4	3.3	3	2.6	1	3.7	0	0.0	0	0.0	1	2.2	1	1.3	3
Beta-hemolytic streptococci	0	0.0	0	0.0	6	5.0	2	1.7	1	3.7	0	0.0	0	0.0	2	4.3	1	1.3	2
Nonhemolytic streptococci	2	7.1	1	5.3	5	4.2	12	10.4	1	3.7	1	4.8	7	13.7	1	2.2	7	8.8	5
Anaerobic streptococci	0	0.0	0	0.0	1	0.8	1	0.9	0	0.0	0	0.0	2	3.9	0	0.0	0	0.0	0
Escherichia sp.	4	14.3	3	15.8	12	10.0	12	10.4	0	0.0	2	9.5	8	15.7	1	2.2	4	5.0	3
Aerobacter-Klebsiella	2	7.1	1	5.3	4	3.3	4	3.5	2	7.4	1	4.8	3	5.9	4	8.7	5	6.3	2
Paracoloclostridium sp.	0	0.0	0	0.0	2	1.7	3	2.6	1	3.7	0	0.0	1	2.0	3	6.5	3	3.8	4
Proteus sp.	1	3.6	3	15.8	2	1.7	6	5.2	0	0.0	0	0.0	2	3.9	4	8.7	5	6.3	4
Pseudomonas sp.	0	0.0	0	0.0	1	0.8	3	2.6	0	0.0	1	4.8	4	7.8	3	6.5	3	3.5	4
Clostridium sp.	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Bacteroides sp.	0	0.0	0	0.0	1	0.8	0	0.0	1	3.7	0	0.0	3	5.9	3	6.5	0	0.0	0
Other	13	46.4	4	21.1	7	5.8	9	7.8	9	33.3	8	38.1	30	58.8	16	34.8	11	13.8	13
Unidentified	1	3.6	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0

Table D-23

	Hospital 1			Hospital 2			Hospital 3			Hospital 4			Hospital 5					
	No.	%	Unirradiated	No.	%	Unirradiated	No.	%	Unirradiated	No.	%	Unirradiated	No.	%	Unirradiated			
Total wounds cultured	18	100	22	100	23	100	30	100	12	100	17	100	43	100	31	100	35	100
Sterile cultures	1	5.6	1	4.5	13	56.5	12	40.0	5	41.7	3	17.6	7	16.3	6	19.4	12	34.3
Organism:																		
Coag.-pos. staphylococci	1	5.6	1	4.5	1	4.3	4	13.3	2	16.7	1	5.9	12	27.9	13	23.6	7	22.6
Coag.-neg. staphylococci	4	22.2	6	27.3	5	21.7	7	23.3	2	16.7	7	41.2	11	25.6	16	29.1	11	35.5
Alpha-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	1	1.8	3	9.7
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	3.3	1	8.3	3	10.0	2	4.7	1	1.8	0	0.0
Nonhemolytic streptococci	0	0.0	1	4.5	2	8.7	4	13.3	2	16.7	3	17.6	6	14.0	6	10.9	1	3.2
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.3	0	0.0	0	0.0
Escherichia sp.	6	33.3	5	22.7	0	0.0	1	3.3	2	16.7	5	29.4	8	18.6	6	10.9	5	16.1
Aerobacter-Klebsiella	1	5.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	9.3	4	7.3	2	6.5
Paraclostridium sp.	1	5.6	0	0.0	0	0.0	1	3.3	0	0.0	1	5.9	2	4.7	4	7.3	3	9.7
Proteus sp.	1	5.6	1	4.5	2	8.7	1	3.3	3	16.7	3	17.6	3	7.0	4	7.3	3	9.7
Pseudomonas sp.	0	0.0	1	4.5	4	17.4	2	6.7	2	11.8	6	29.4	6	14.0	2	3.6	5	16.1
Clostridium sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.9	1	2.3	0	0.0	1	3.2
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	6	33.3	9	40.9	1	4.3	4	13.3	3	25.0	6	35.3	11	25.6	24	43.6	2	6.5
Unidentified	2	11.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	3.6	0	0.0

Table D-24

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Contaminated Wounds That Did Not Develop Infection, by Ultraviolet Irradiation Status and by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %
Total wounds cultured	2	100	2	100	2	100	13	100	9	100
Sterile cultures	0	0.0	1	50.0	1	50.0	3	23.1	0	0.0
Organism:										
Coag.-pos. staphylococci	0	0.0	0	0.0	0	0.0	0	0.0	3	33.3
Coag.-neg. staphylococci	1	50.0	1	50.0	1	50.0	6	46.2	0	0.0
Alpha-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	7.7	0	0.0
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Nonhemolytic streptococci	0	0.0	1	50.0	1	50.0	2	15.4	0	0.0
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	1	50.0	2	66.7	0	0.0	1	7.7	5	41.7
Paracolonbactrum sp.	0	0.0	1	50.0	0	0.0	2	15.4	3	25.0
Proteus sp.	0	0.0	0	0.0	0	0.0	1	7.7	0	0.0
Pseudomonas sp.	0	0.0	1	50.0	2	66.7	0	0.0	1	11.1
Clostridium sp.	0	0.0	0	0.0	0	0.0	1	7.7	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	0	0.0	1	50.0	3	23.1	1	11.1
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table D-25

Frequency of Organisms Recovered From Cultures of Postoperative Drainage of Dirty Wounds That Did Not Develop Infection, by Ultraviolet Irradiation Status and by Individual Hospital

	Hospital 1		Hospital 2		Hospital 3		Hospital 4		Hospital 5	
	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %	Irradiated No.	Unirradiated %
Total wounds cultured	2	100	5	100	2	100	18	100	4	100
Sterile wounds	0	0.0	0	0.0	1	50.0	0	0.0	1	25.0
Organism:										
Coag.-pos. staphylococci	0	0.0	2	40.0	1	50.0	0	0.0	0	0.0
Coag.-neg. staphylococci	1	50.0	1	20.0	0	0.0	2	11.1	1	25.0
Alpha-hemolytic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Beta-hemolytic streptococci	0	0.0	0	0.0	0	0.0	1	5.6	0	0.0
Nonhemolytic streptococci	0	0.0	0	0.0	1	50.0	2	11.1	1	25.0
Anaerobic streptococci	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Escherichia sp.	0	0.0	1	20.0	0	0.0	1	5.6	1	25.0
Paracolonbactrum sp.	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0
Proteus sp.	0	0.0	1	20.0	0	0.0	1	5.6	2	11.1
Pseudomonas sp.	0	0.0	1	20.0	0	0.0	3	16.7	1	25.0
Clostridium sp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bacteroides sp.	0	0.0	0	0.0	0	0.0	1	5.6	0	0.0
Other	1	50.0	0	0.0	0	0.0	1	5.6	2	50.0
Unidentified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0